

2003-04 DRIVE AXLES**Axle Shafts - Rear - Pilot****TROUBLE SHOOTING**

NOTE: See appropriate table in TROUBLE SHOOTING article in GENERAL INFORMATION.

REMOVAL & INSTALLATION**AXLE SHAFTS**

NOTE: Letters in parenthesis correspond to letters in illustrations.

Removal

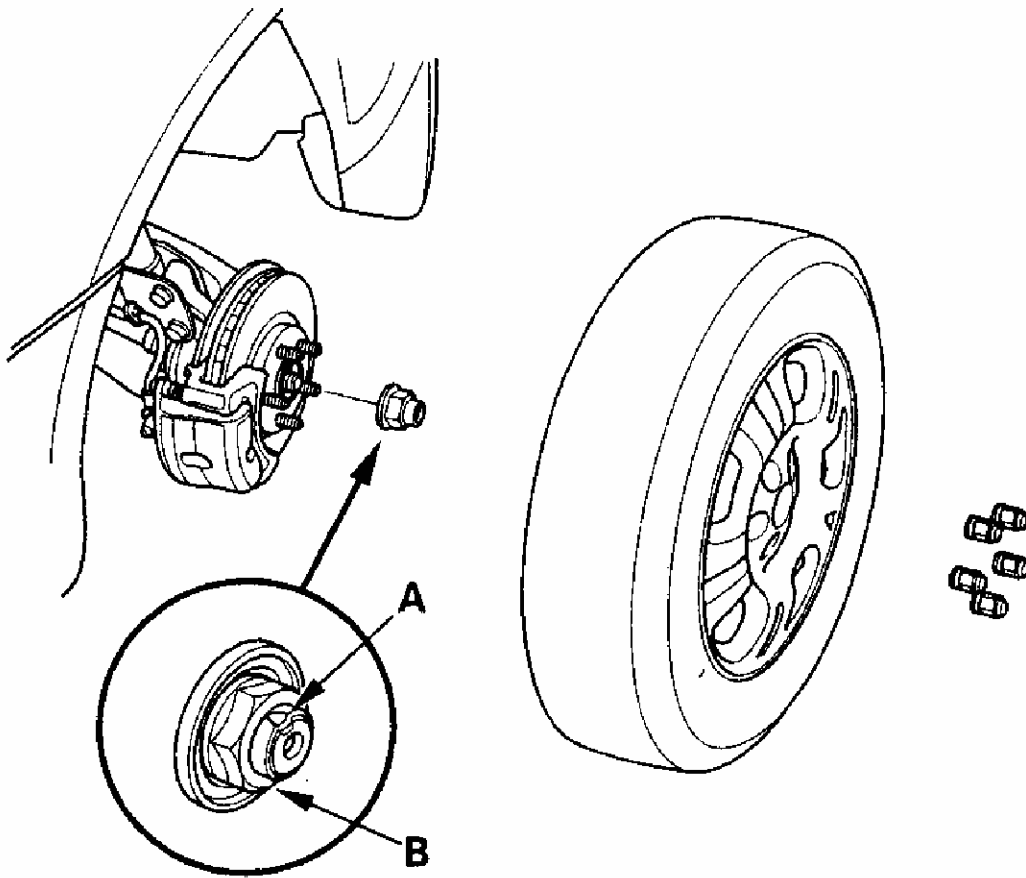
1. Loosen the wheel nuts slightly.
2. Raise the rear of the vehicle, and make sure it is securely supported with safety stands in the proper locations.
3. Drain the differential fluid. See appropriate DIFFERENTIALS article in DRIVELINE/AXLES.
4. Remove the wheel nuts and rear wheels.
5. Lift up the locking tab (A) on the spindle nut (B), then remove the nut. See **Fig. 1** .
6. Remove the upper arm bolt (B). See **Fig. 2** .
7. Remove the rear damper (shock absorber).
8. Remove the lower arm "B" flange bolt. See **Fig. 3** .
9. Remove the ABS rear wheel sensor bracket.
10. Pull the knuckle outward, and disconnect the rear axle shaft outboard joint from the rear wheel hub using a plastic hammer. See **Fig. 4** .
11. Remove the rear axle shaft outboard joint. See **Fig. 5** .

NOTE: This is a prying tool. DO NOT strike it with a hammer.

12. Using the axle shaft remover, pry both inboard joint (A) from the differential (B). See **Fig. 6** .
13. Remove the rear axle shaft. See **Fig. 7** .

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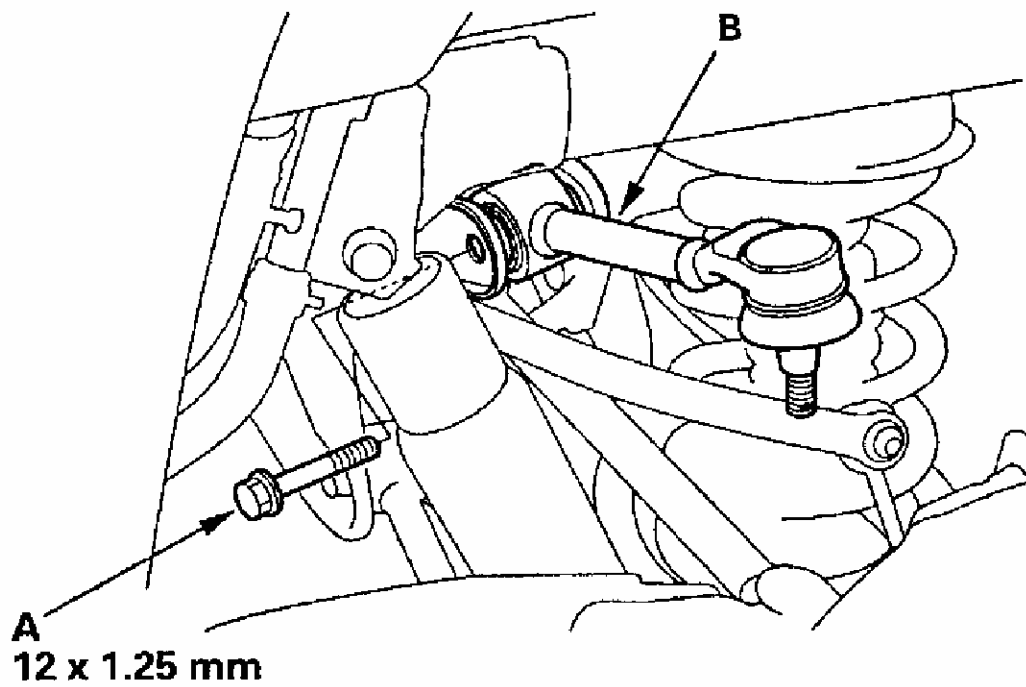


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Fig. 1: Removing & Installing Axle Nut
Courtesy of AMERICAN HONDA CO., INC.

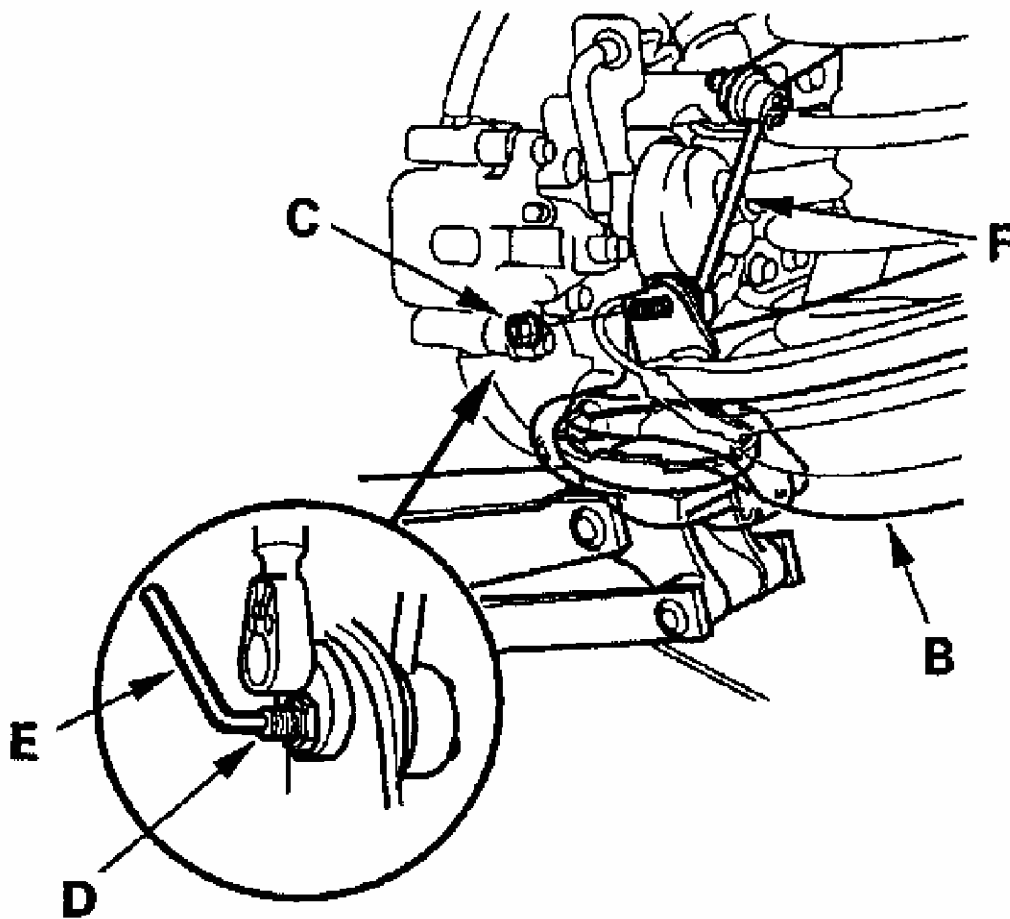
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2003-04 DRIVE AXLES Axle Shafts - Rear - Pilot



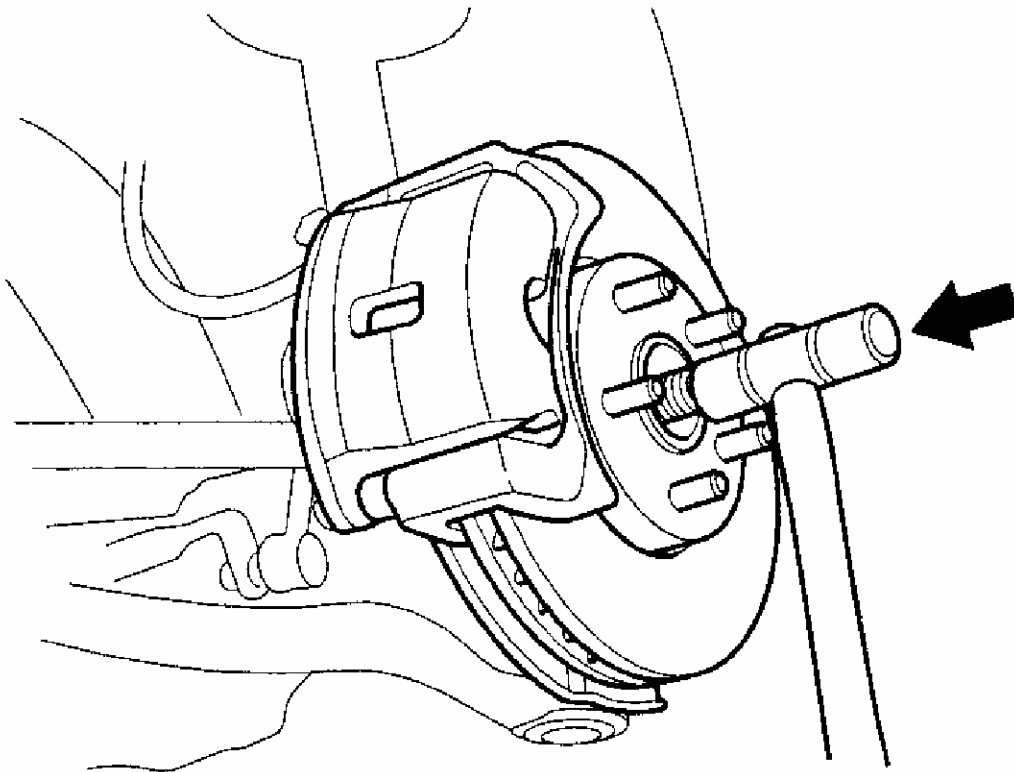
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Fig. 2: Removing Upper Arm Bolt
Courtesy of AMERICAN HONDA MOTOR CO., INC.



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Fig. 3: Removing Lower Arm "B" Flange Bolt
Courtesy of AMERICAN HONDA MOTOR CO., INC.



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Fig. 4: Removing Axle Shaft Outboard Joint From Wheel Hub
Courtesy of AMERICAN HONDA CO., INC.

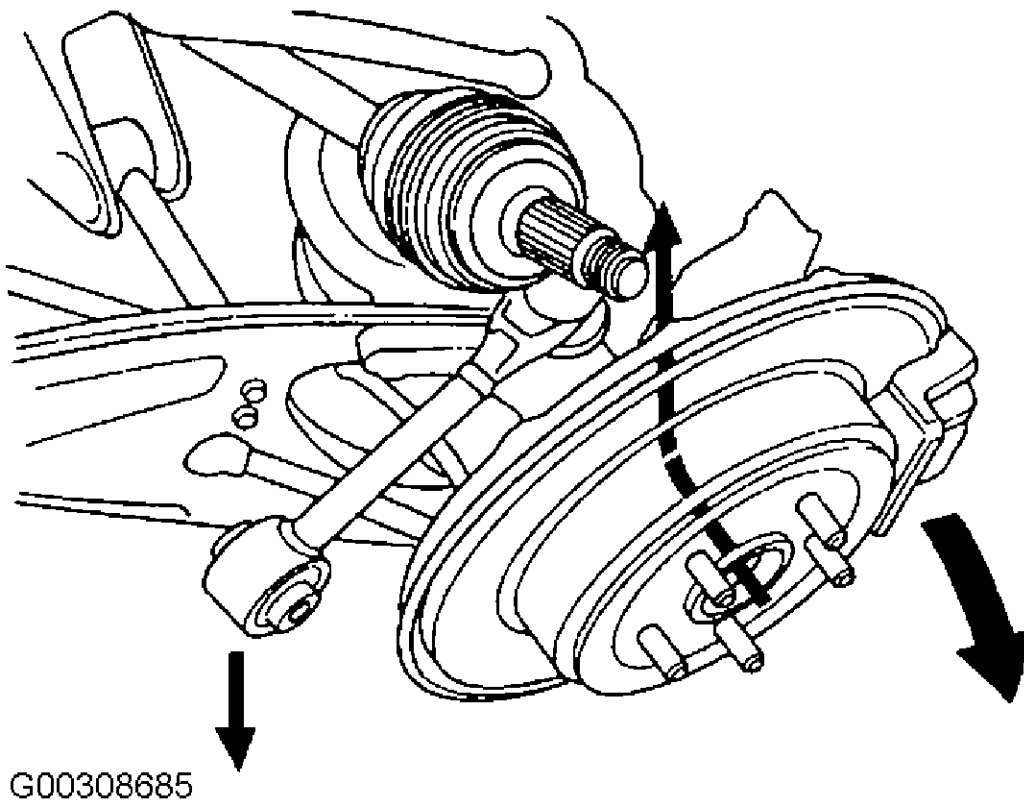
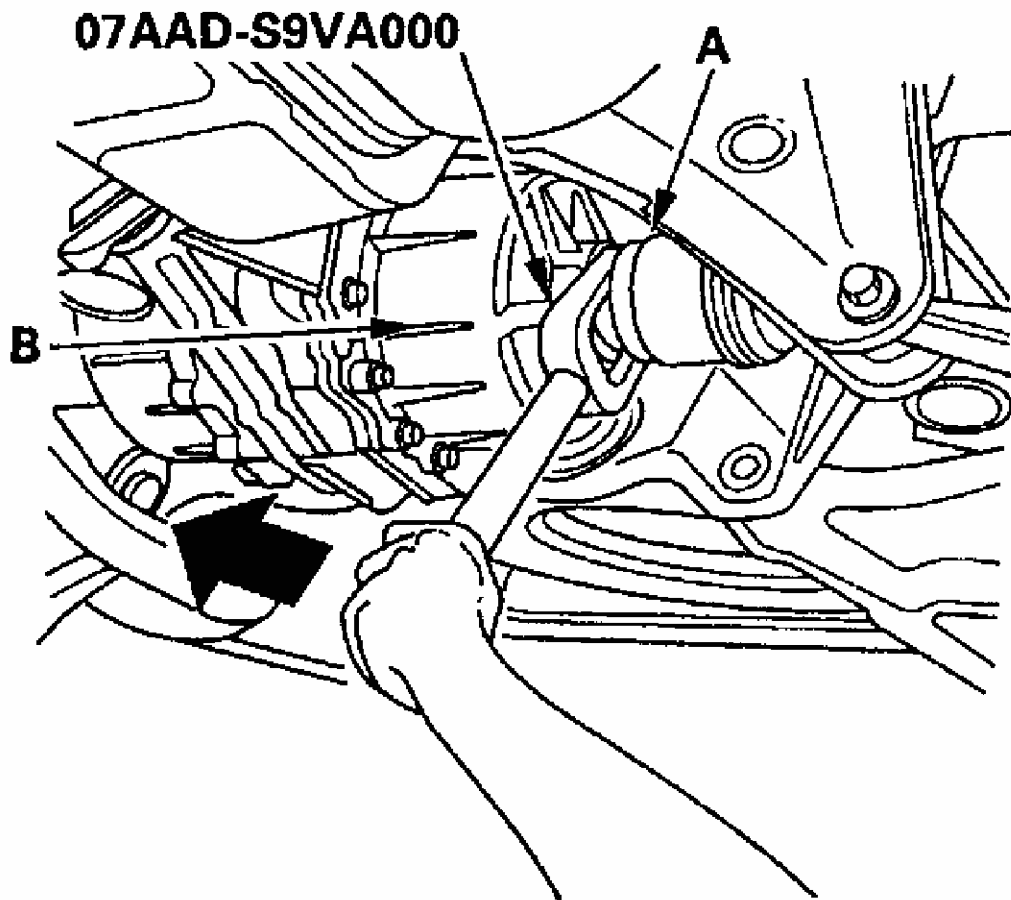
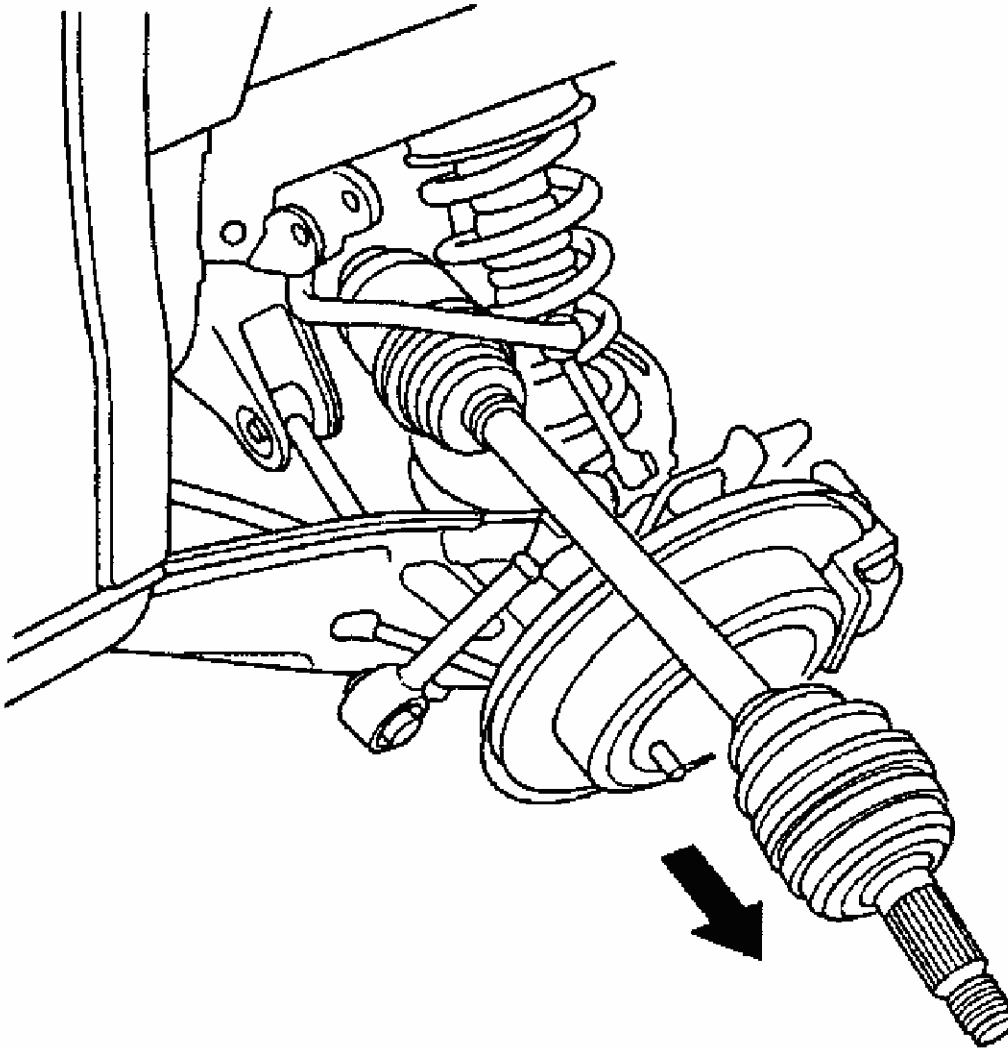


Fig. 5: Removing Rear Axle Shaft Outboard Joint
Courtesy of AMERICAN HONDA MOTOR CO., INC.



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Fig. 6: Removing Inboard Joint From Differential
Courtesy of AMERICAN HONDA MOTOR CO., INC.



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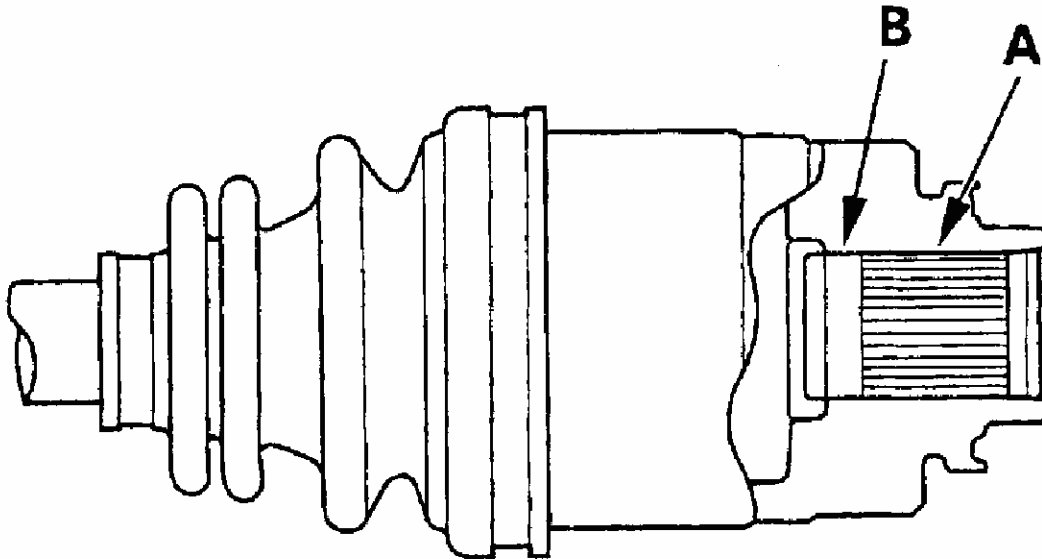
Fig. 7: Removing Rear Axle Shaft

Courtesy of AMERICAN HONDA MOTOR CO., INC.

Installation

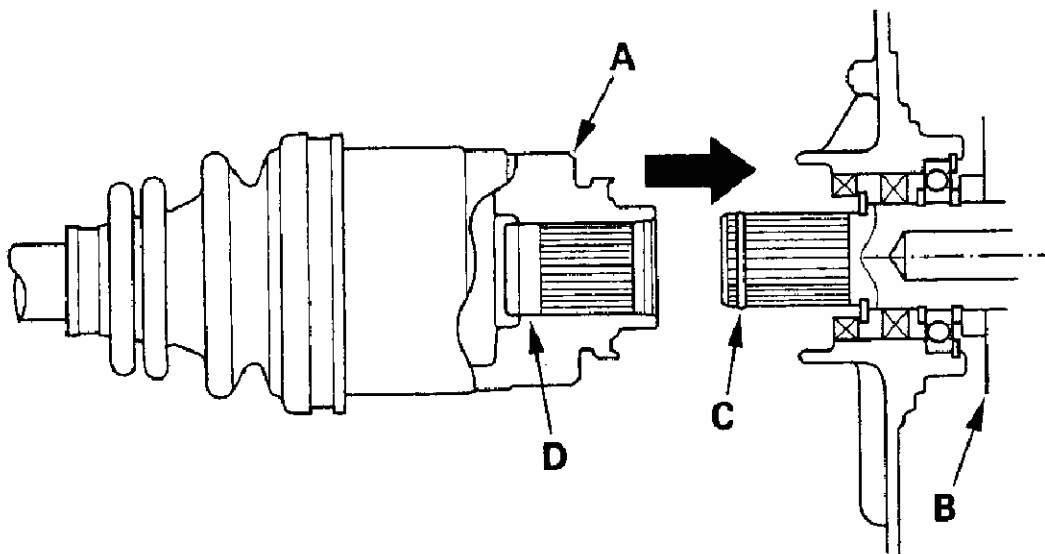
1. Apply .05-.07 oz. (1.5-2 g) of grease to the whole splined surface (A). See **Fig. 8** . After applying grease, remove the grease from the splined grooves at intervals of 2-3 splines and from the set ring groove (B) so that air can bleed from the differential.
2. Seat a new set ring in the set ring groove of the differential.
3. Clean the areas where the axle shaft contacts the differential thoroughly with solvent or brake cleaner, and dry with compressed air. See **Fig. 9** . Insert the inboard end (A) of the axle shaft into the differential (B) until the set ring (C) locks in the groove (D).

4. Install the axle shaft. See **Fig. 10**.
5. Install the outboard joint into the rear hub. See **Fig. 5**.



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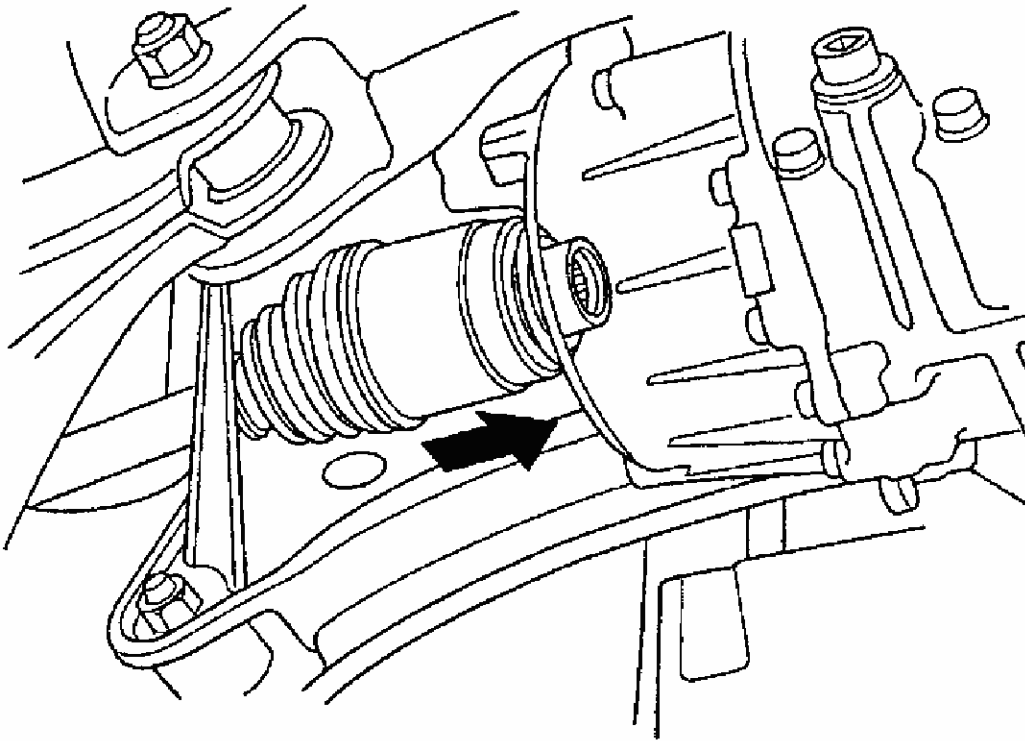
Fig. 8: Applying Grease To Whole Splined Surface
Courtesy of AMERICAN HONDA MOTOR CO., INC.



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Fig. 9: Installing Axle Shaft To Differential

Courtesy of AMERICAN HONDA MOTOR CO., INC.



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Fig. 10: Installing Axle Shaft

Courtesy of AMERICAN HONDA MOTOR CO., INC.

OVERHAUL

AXLE SHAFT

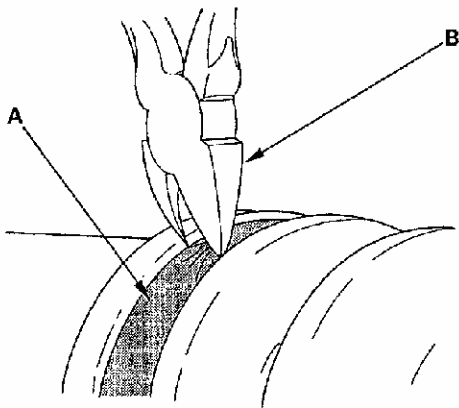
Disassembly (Inboard Joint)

1. Remove the boot bands. Be careful not to damage the boot and dynamic damper.
 - If the boot band is a welded type (A), cut the boot band (B). See **Fig. 11** .
 - If the boot band is a double loop type (C), lift up the band bend (D), then push it into the clip (E).
 - If the boot band is a low profile type (F), pinch the boot band using appropriate boot band pincers (G).
2. Mark (A) on each roller (B) and inboard joint (C) to identify the locations of rollers and grooves in the inboard joint. See **Fig. 12** . Then remove the inboard joint on the shop towel (D). Be careful not to drop the rollers when separating them from the inboard

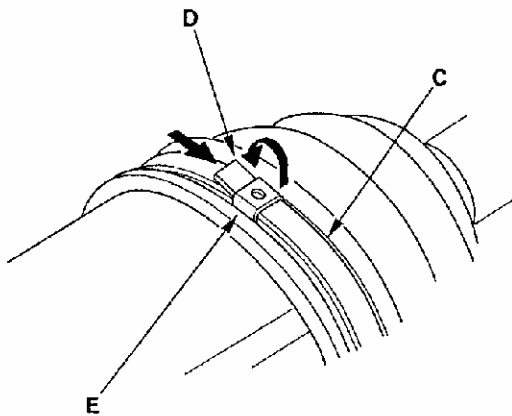
joint.

3. Mark (A) on the rollers (B) and spider (C) to identify the location of the rollers on the spider, then remove the rollers. See **Fig. 13** .
4. Remove the circlip (D).
5. Mark the spider (C) and axle shaft (E) to identify the position of the spider on the shaft.
6. Remove the spider (C).
7. Wrap the splines on the axle shaft with vinyl tape (A) to prevent damage to the boot. See **Fig. 14** .
8. Remove the inboard boot. Be careful not to damage the boot.
9. Remove the vinyl tape.

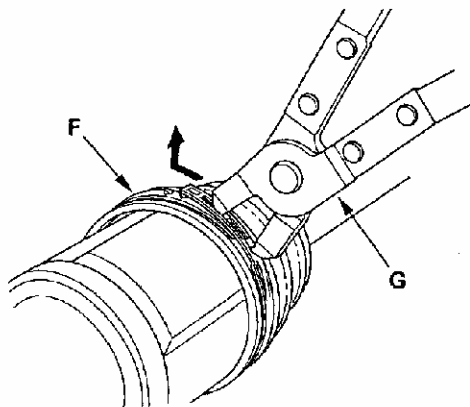
Welded Type



Double Loop Type

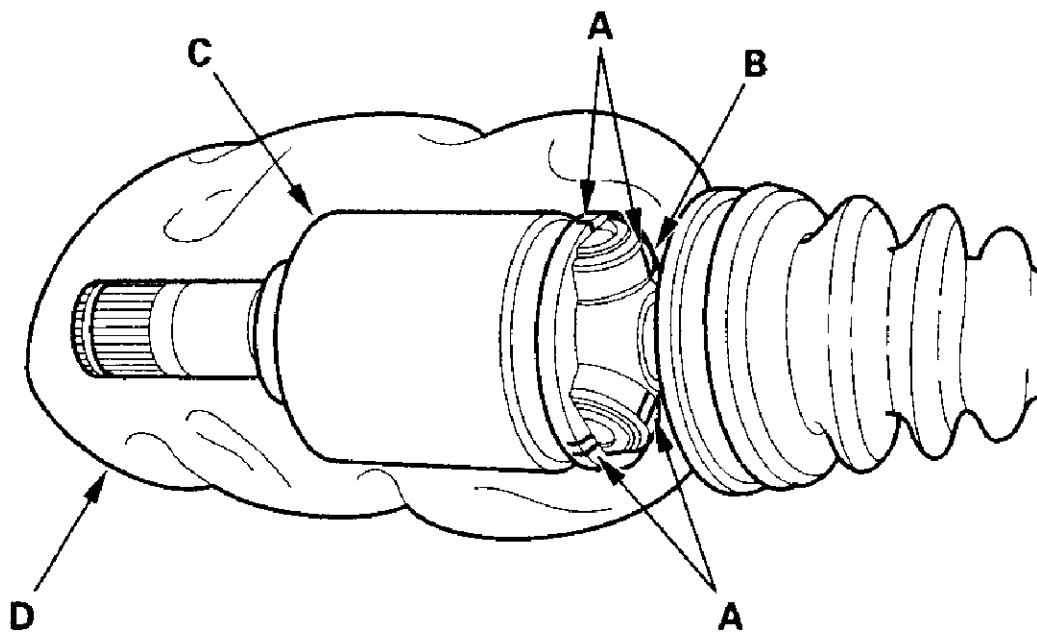


Low Profile Type



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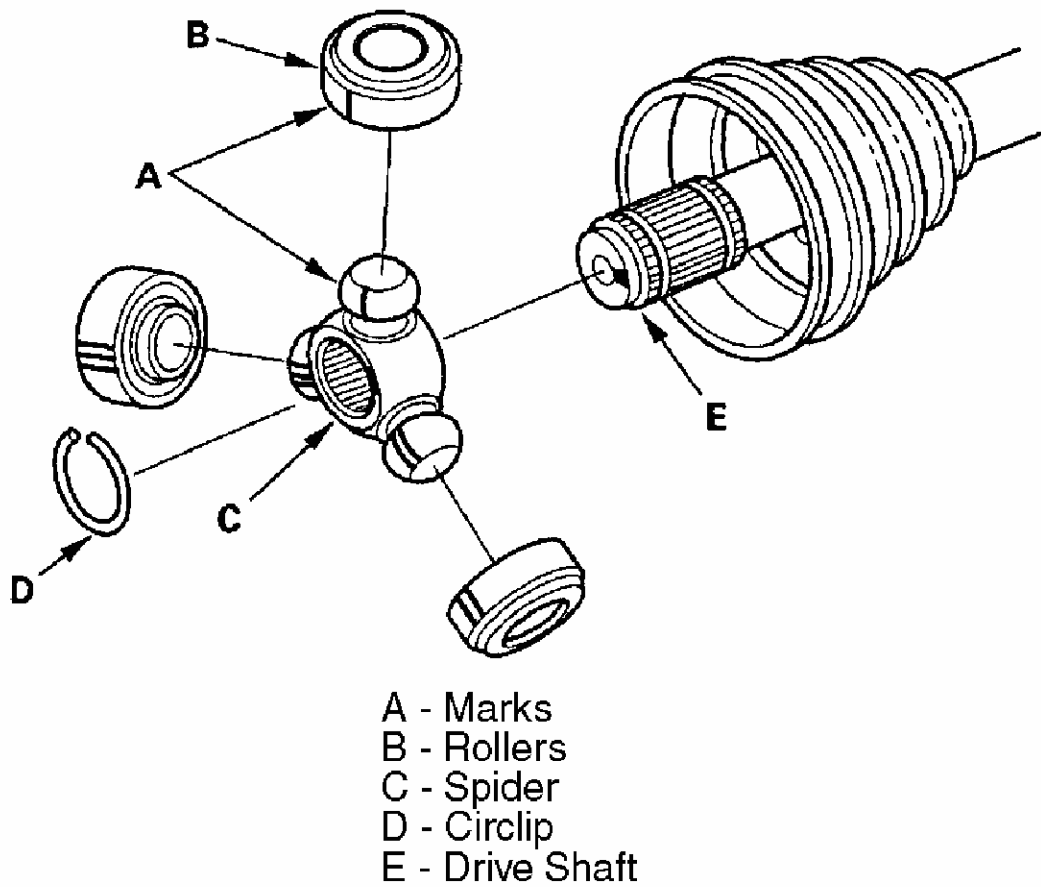
Fig. 11: Removing Locking Tab/Double Loop Type Boot Bands
Courtesy of AMERICAN HONDA MOTOR CO., INC.



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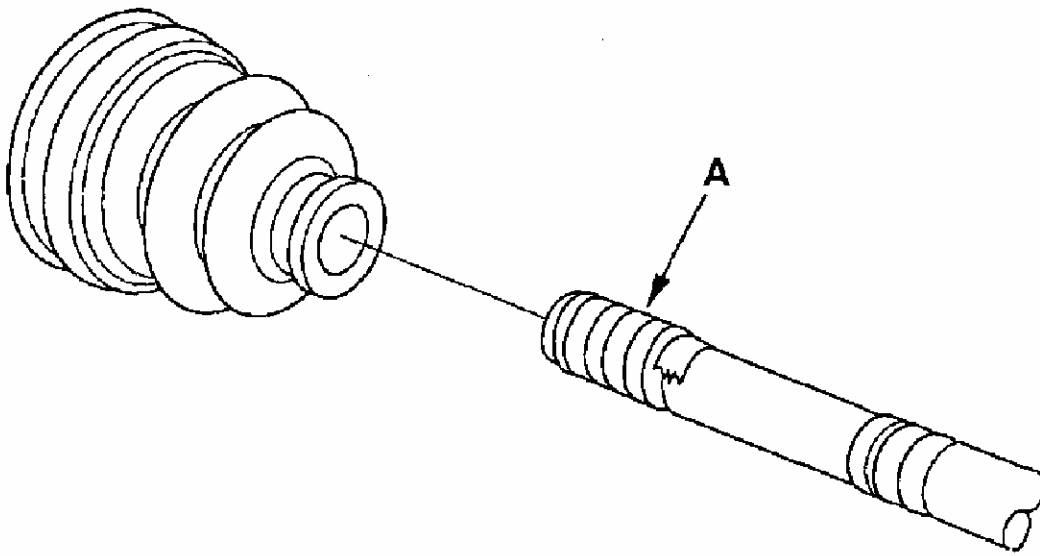
Fig. 12: Marking Roller & Inboard Joint
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Except HUM-produced Model



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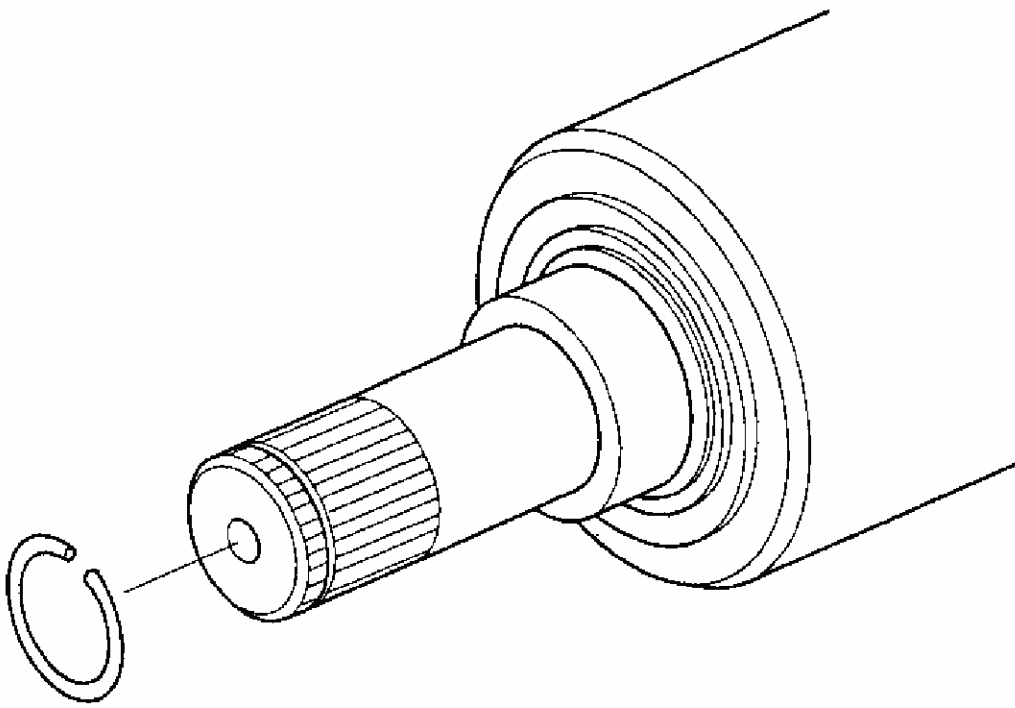
Fig. 13: Marking On Rollers & Spider
Courtesy of AMERICAN HONDA MOTOR CO., INC.



A - Vinyl Tape

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Fig. 14: Wrapping Splines On Axle Shaft With Vinyl Tape
Courtesy of AMERICAN HONDA MOTOR CO., INC.



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Fig. 15: Seating New Set Ring

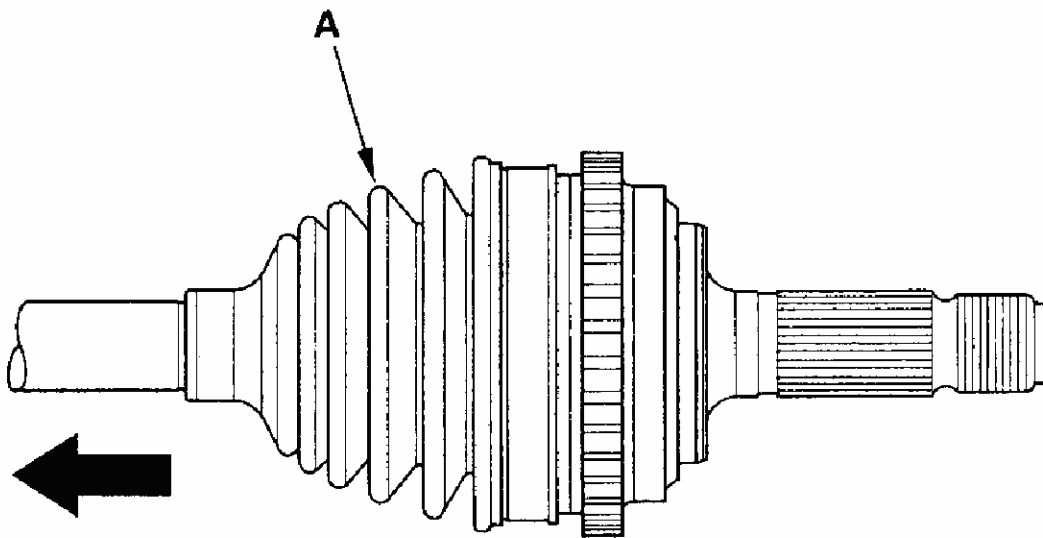
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Disassembly (Outboard Joint)

NOTE: The boot bands for the outboard and inboard joints are the same. Use the same procedure.

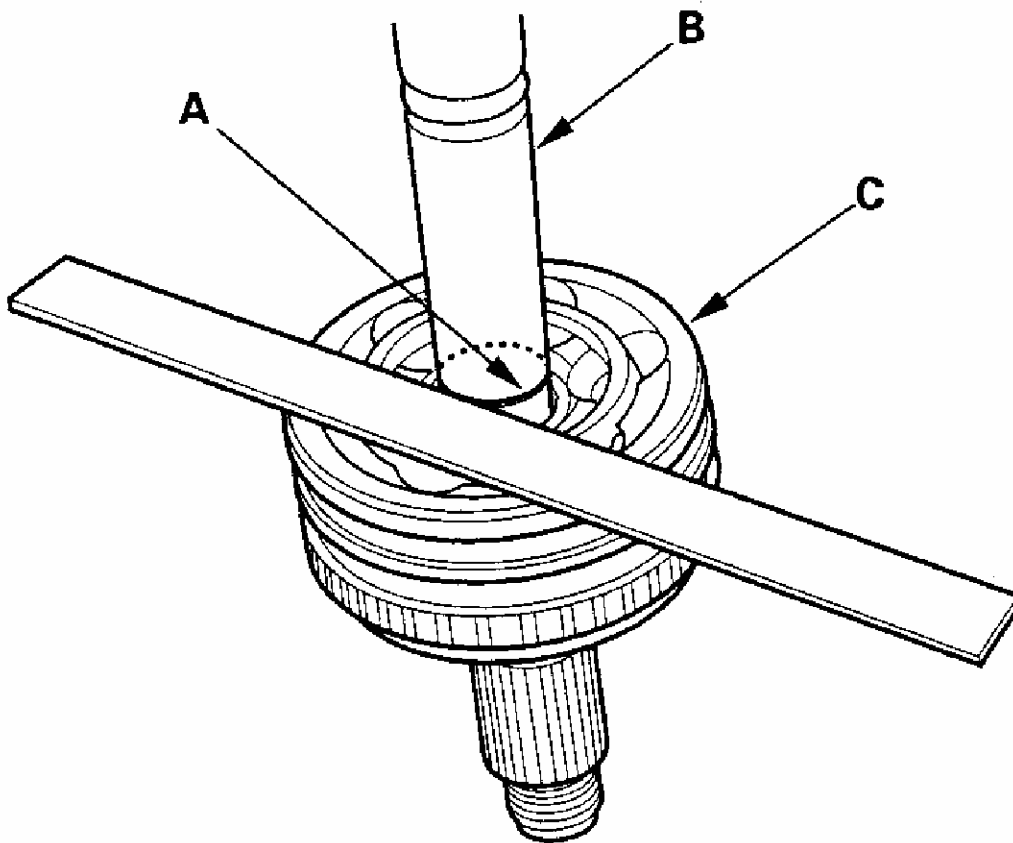
1. Remove the boot bands.
2. Slide the outboard boot (A) to the inboard joint side. See **Fig. 16** Be careful not to damage the boot.
3. Wipe off the grease to expose the axle shaft and the outboard joint end.
4. Make a mark (A) on the axle shaft (B) at the same position of the outboard joint end (C). See **Fig. 17** .
5. Carefully clamp the axle shaft in a vise.
6. Remove the outboard joint (A) using the threaded adapter and an appropriate 5/8" x 18 slide hammer (B). See **Fig. 18** .
7. Remove the axle shaft from the vise.

8. Remove the circlip from the axle shaft. See **Fig. 19** .
9. Wrap the splines on the axle shaft with vinyl tape to prevent damage to the boot. See **Fig. 14** .
10. Remove the outboard boot. Be careful not to damage the boot.
11. Remove the vinyl tape.



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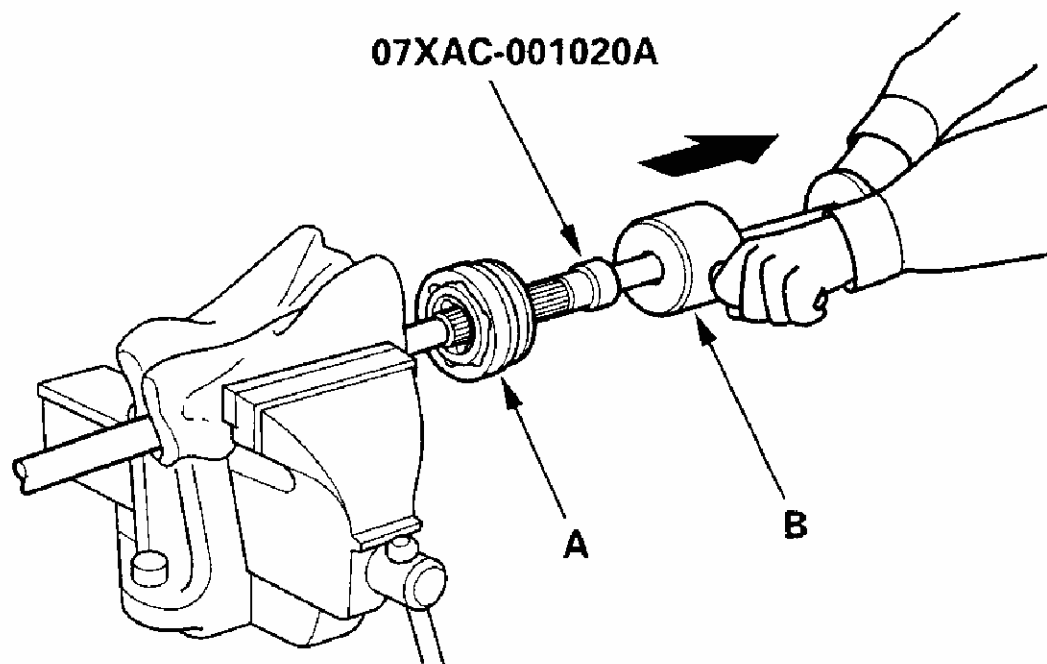
Fig. 16: Removing Outboard Boot
Courtesy of AMERICAN HONDA MOTOR CO., INC.



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Fig. 17: Marking Axle Shaft

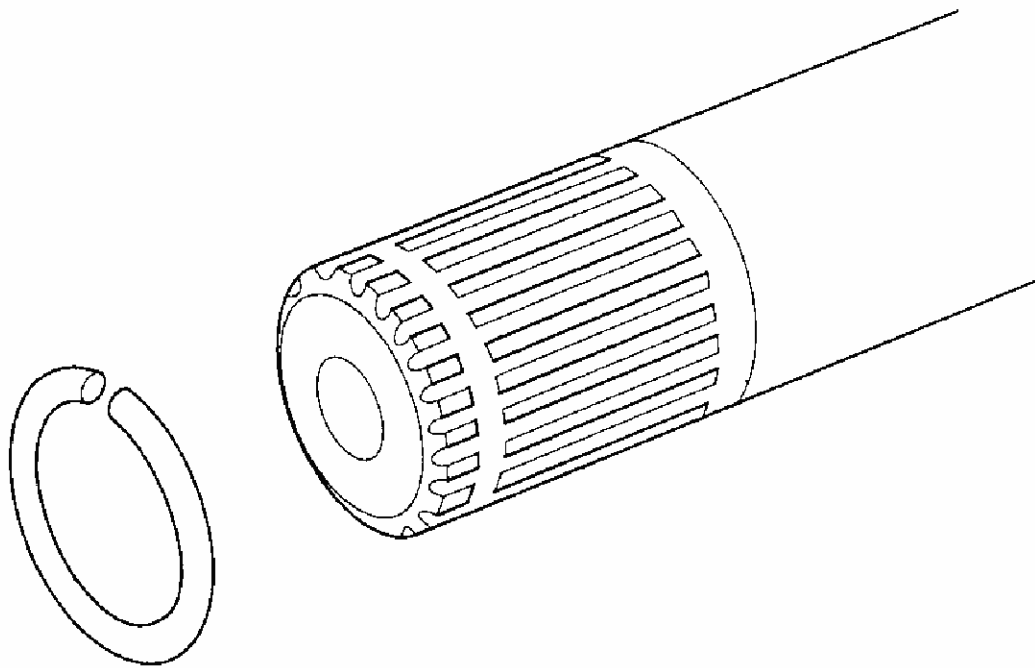
Courtesy of AMERICAN HONDA MOTOR CO., INC.



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Fig. 18: Removing Outboard Joint

Courtesy of AMERICAN HONDA MOTOR CO., INC.



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Fig. 19: Removing Stop Ring

Courtesy of AMERICAN HONDA MOTOR CO., INC.

Reassembly (Inboard Joint)

NOTE: Refer to the exploded view as needed during this procedure. See **Fig. 20** .

1. Wrap the splines with vinyl tape (A) to prevent damage to the inboard boot. See **Fig. 14** .
2. Install the inboard boot onto the axle shaft, then remove the vinyl tape. Be careful not to damage the inboard boot.
3. Install the spider (A) onto the axle shaft by aligning the marks (B) on the spider and the end of the axle shaft. See **Fig. 21** .
4. Fit the circlip (C) into the axle shaft groove. Always rotate the circlip in its groove to make sure it is fully seated.
5. Fit the rollers (A) onto the spider (B) with their high shoulders facing outward. See **Fig. 22** and note these following items:
 - Reinstall the rollers in their original positions on the spider by aligning the marks (C).

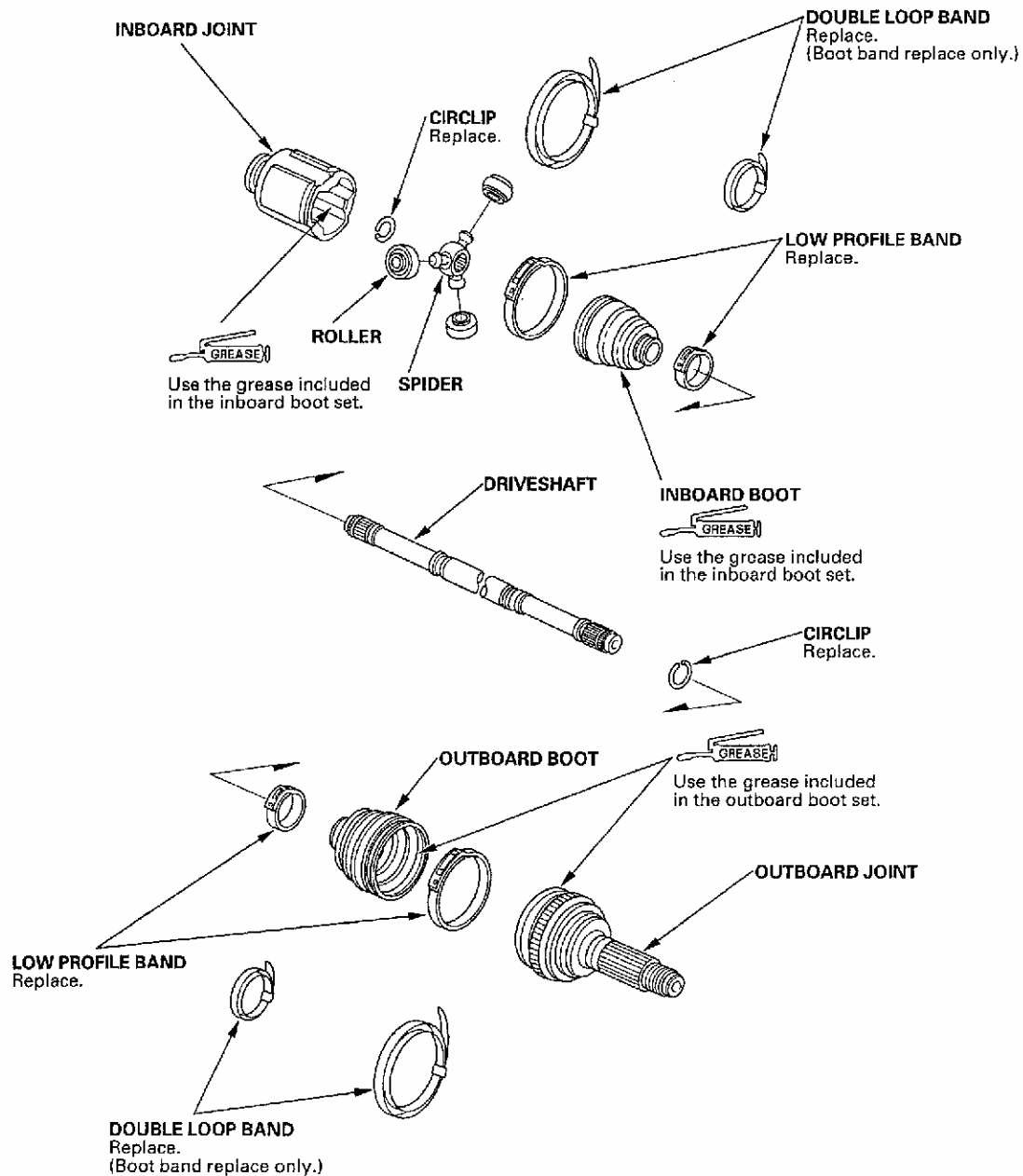
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- Hold the axle shaft pointed up to prevent the rollers from falling off.
6. Pack the inboard joint with the joint grease included in the new axle shaft set to 4.6-4.9 oz. (130-140 g). See **Fig. 23**.
 7. Fit inboard joint onto the axle shaft. See **Fig. 24** and note the following:
 - Reinstall the inboard joint onto the axle shaft by aligning the marks (A) on the inboard joint and the rollers.
 - Hold the axle shaft so the inboard joint points up to prevent it from falling off.
 8. Adjust the length of the axle shaft. See **Fig. 25**. Adjust the boots to halfway between full compression and full extension. Make sure the ends of the boots seat in the grooves of the axle shaft and joint.
 9. Install the boot bands.
 - For the double loop type, go to step 13 (Boot band replacement only).
 - For the low profile type, go to next step.
 10. Install the new low profile band (A) onto the boot (B), then hook the tab (C) of the band. See **Fig. 26**

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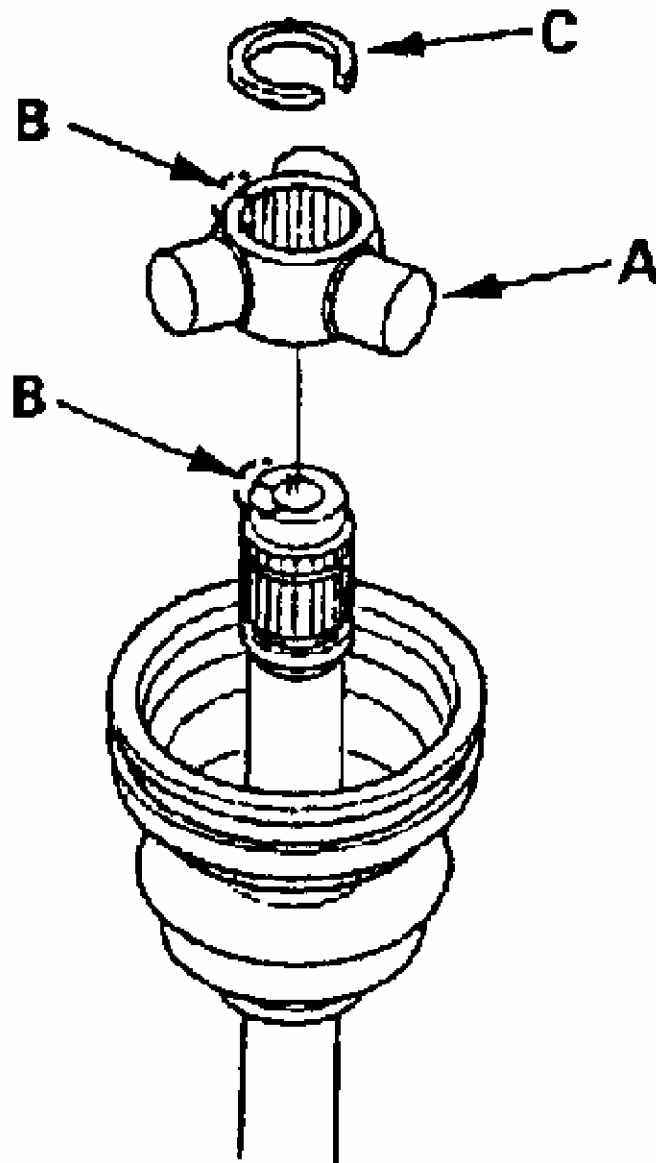
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Fig. 20: Exploded View Of Rear Axle Shaft
Courtesy of AMERICAN HONDA MOTOR CO., INC.

Except HUM-produced Model



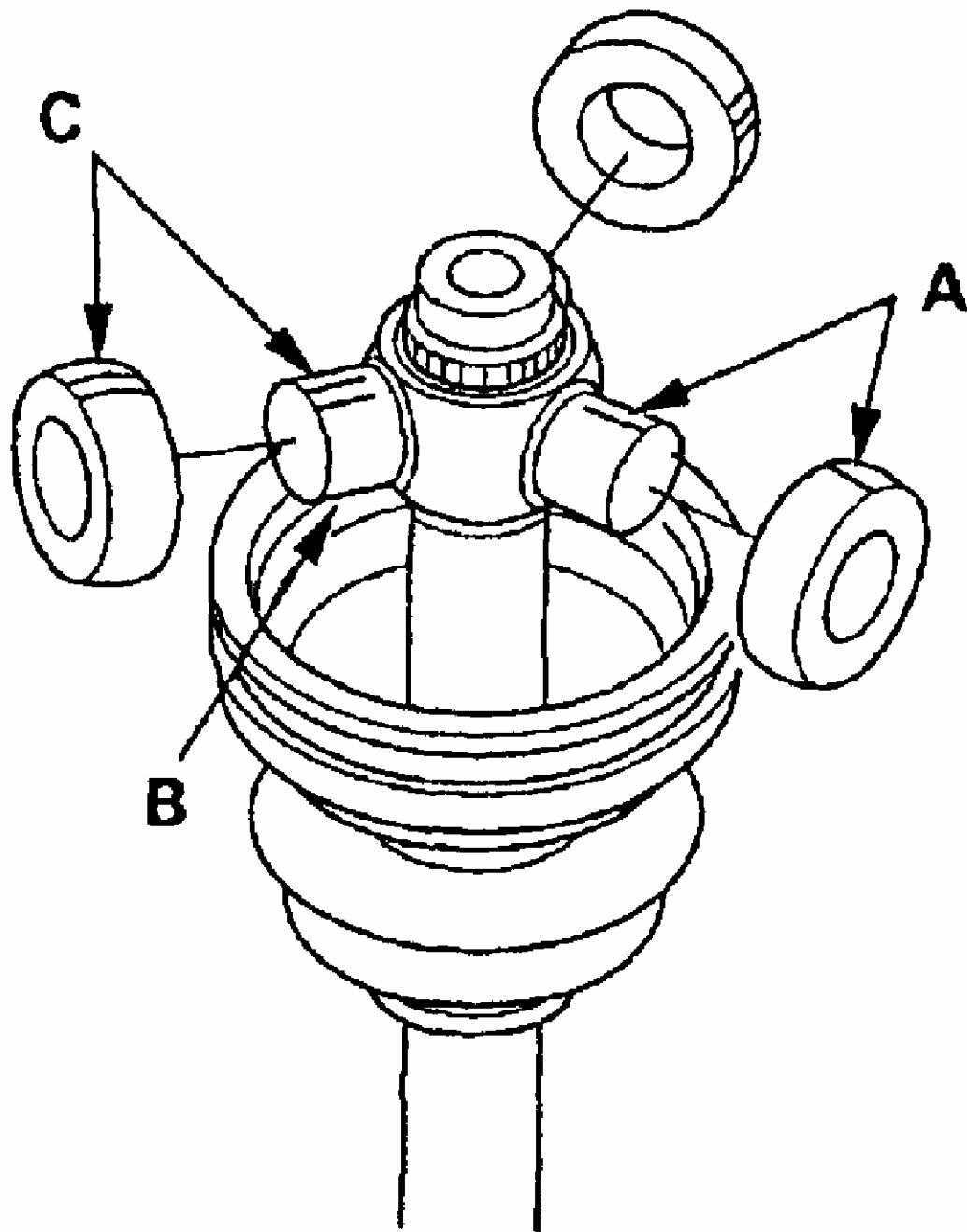
- A - Spider
- B - Aligning Marks
- C - Circlip

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Fig. 21: Installing Spider Onto Axle Shaft

Courtesy of AMERICAN HONDA MOTOR CO., INC.

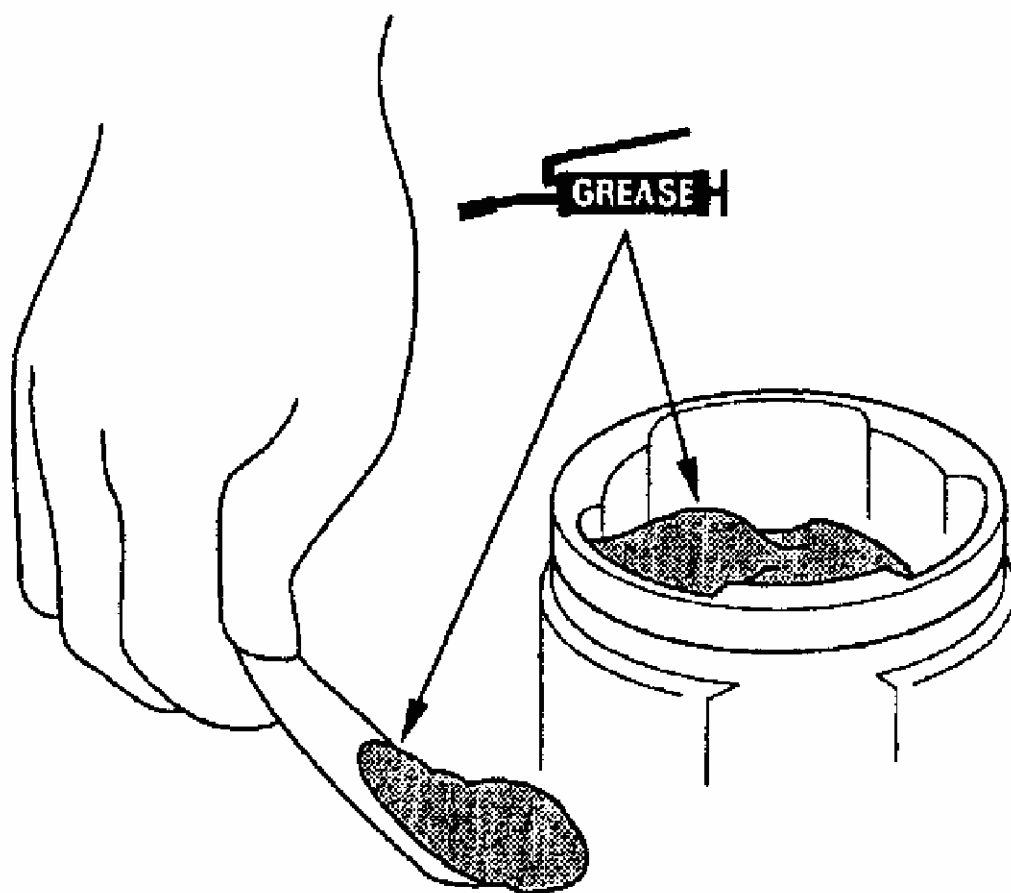


- A - Rollers
- B - Spider
- C - Aligning Marks

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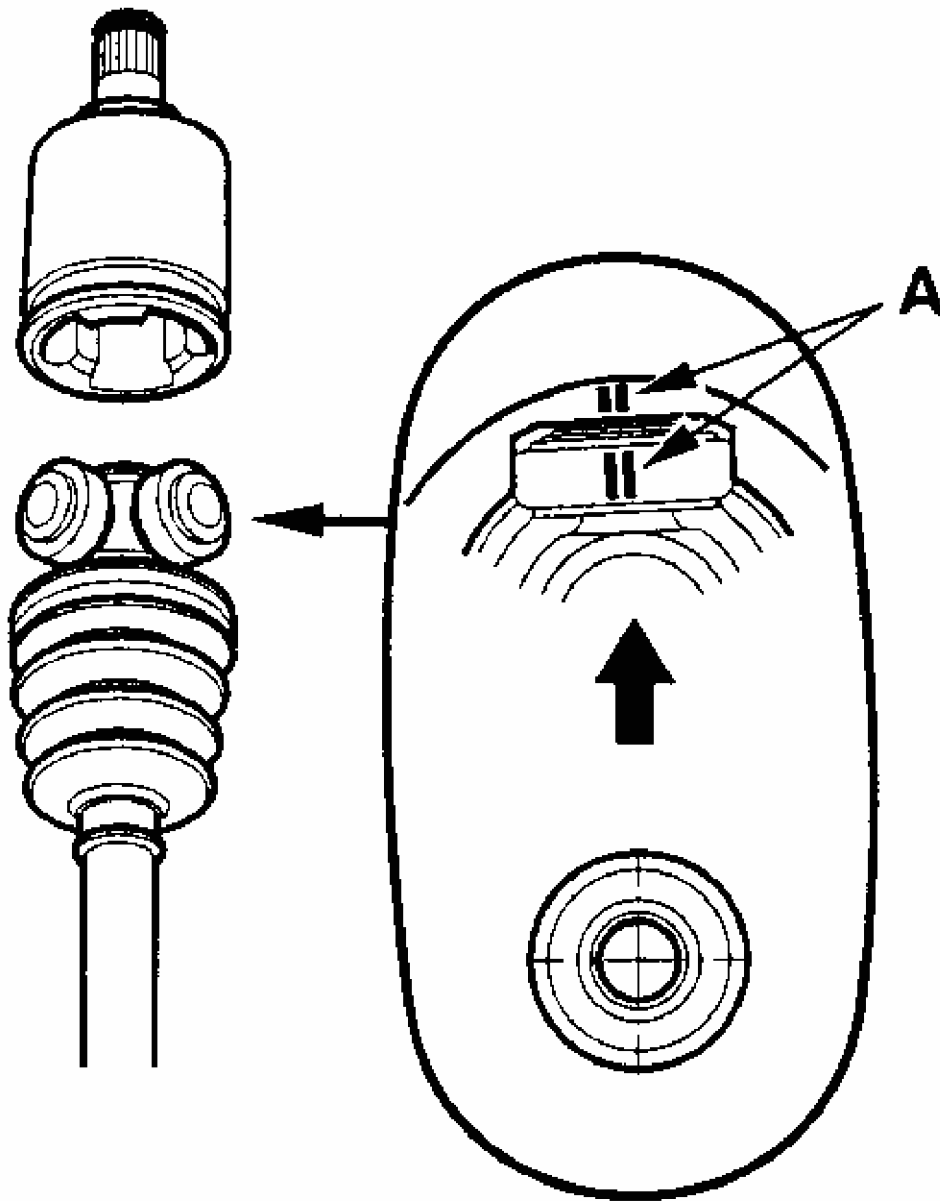
Fig. 22: Fitting Rollers Onto Spider

Courtesy of AMERICAN HONDA MOTOR CO., INC.



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Fig. 23: Packing Inboard Joint With Joint Grease
Courtesy of AMERICAN HONDA MOTOR CO., INC.



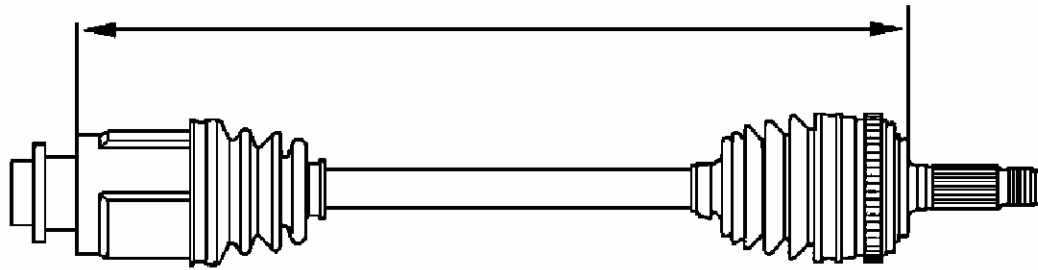
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Fig. 24: Reinstalling Inboard Joint

Courtesy of AMERICAN HONDA MOTOR CO., INC.

Left driveshaft: 574—579 mm (22.6—22.8 in.)

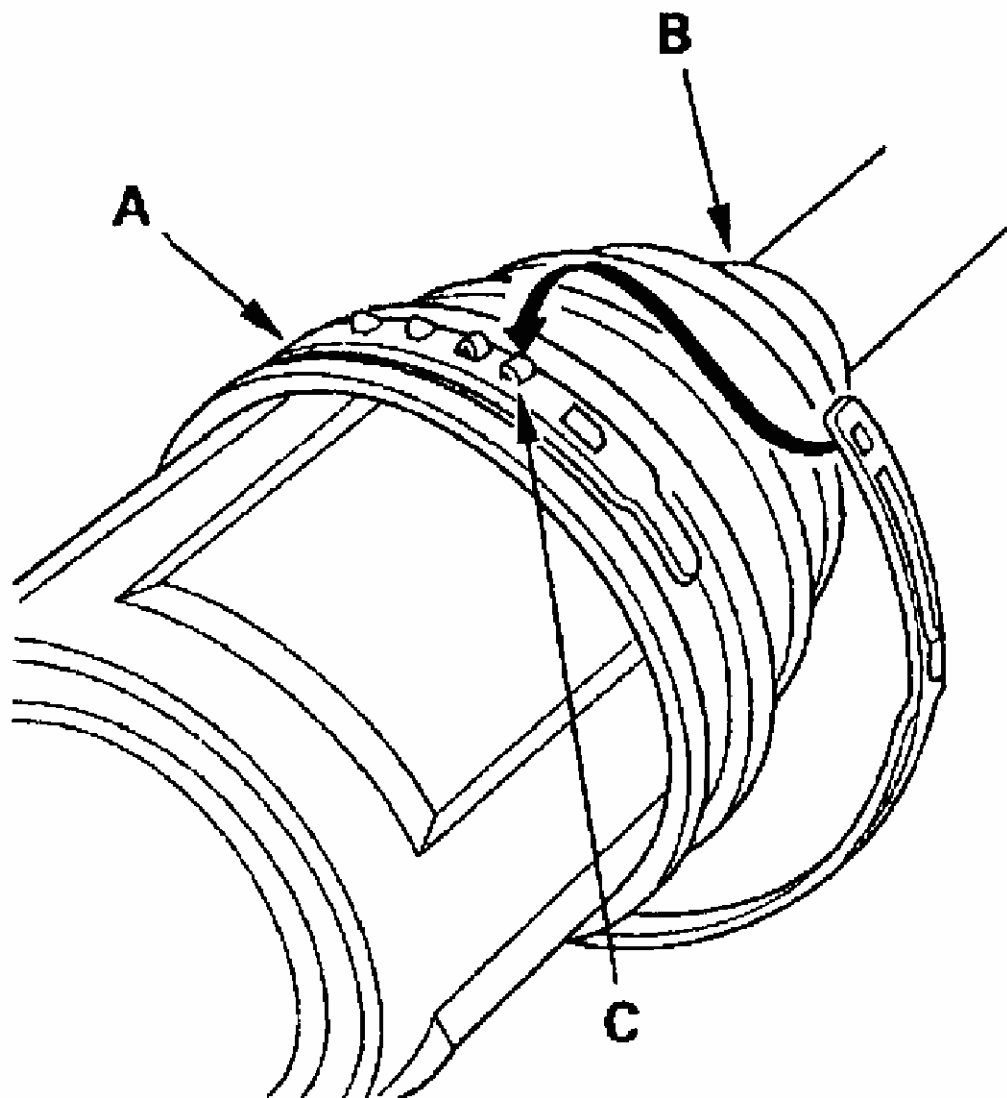
Right driveshaft: 603—608 mm (23.7—23.9 in.)



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Fig. 25: Adjusting Length Of Axle Shaft

Courtesy of AMERICAN HONDA MOTOR CO., INC.



A - Boot Band
B - Boot
C - Tab

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Fig. 26: Installing New Low Profile Band

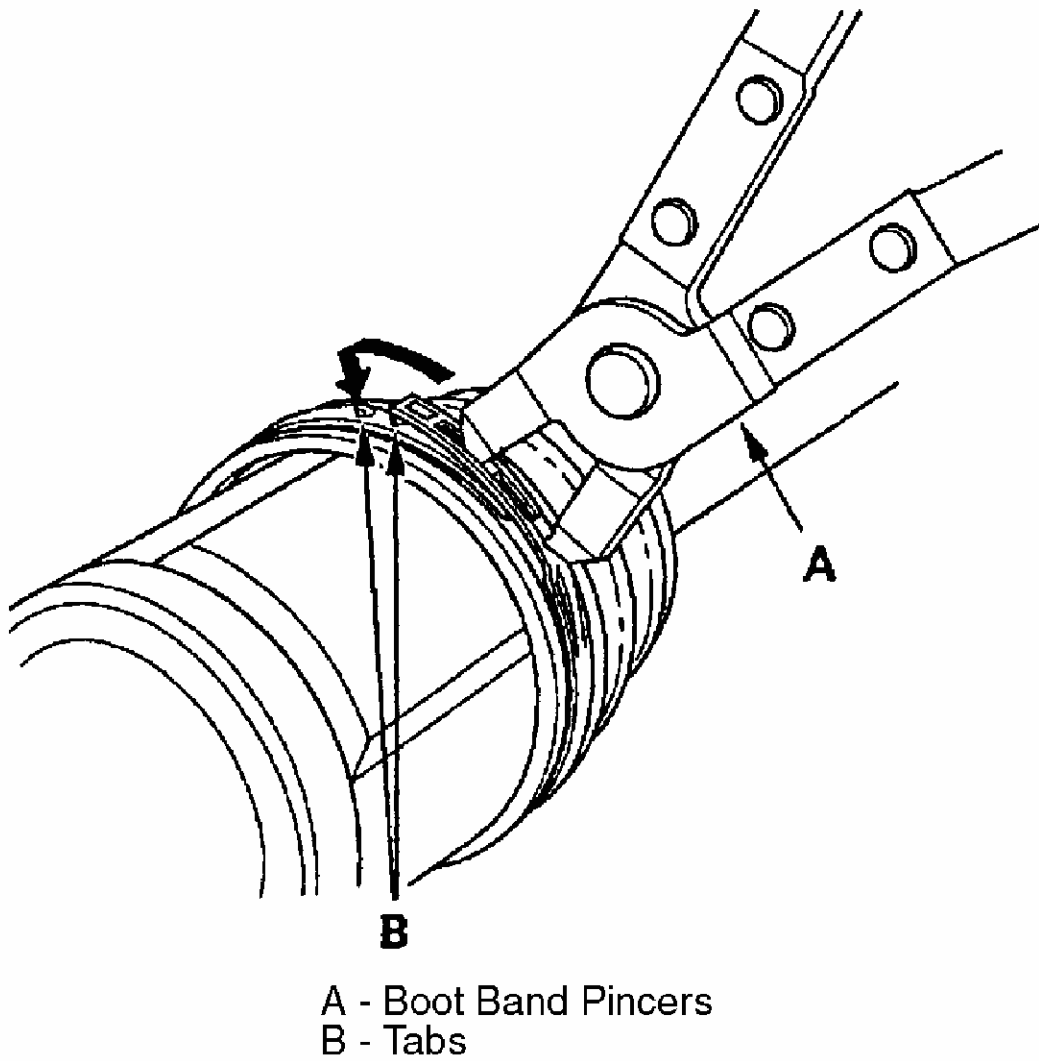
Courtesy of AMERICAN HONDA MOTOR CO., INC.

11. Close the hook portion of the band with appropriate boot band pincers (A), then hook the tabs (B) of the band. See **Fig. 27** .
12. Install the boot band on the other end of the boot, and repeat steps 10 and 11 .

13. Fit the boot ends onto the axle shaft and the inboard joint, then install the new double loop band (A) onto the boot. See **Fig. 28** .
14. Pull up the slack in the band by hand.
15. Mark a position (A) on the band .4-.6" (10-14 mm) from the clip (B). See **Fig. 29** .
16. Thread the free end of the band through the nose section of the appropriate boot band tool (KD-3191) or equivalent (A), and into the slot on the winding mandrel (B). See **Fig. 30** .
17. Place a wrench on the winding mandrel of the boot band tool, and tighten the band until the marked spot (C) on the band meets the edge of the clip.
18. Lift up the boot band tool to bend the free end of the band 90° to the clip. See **Fig. 31** . Center-punch the clip, then fold over the remaining tail onto the clip.
19. Unwind the boot band tool, and cut off the excess free end of the band to leave a .2-.4" (5-10 mm) tail protruding from the clip. See **Fig. 32** .

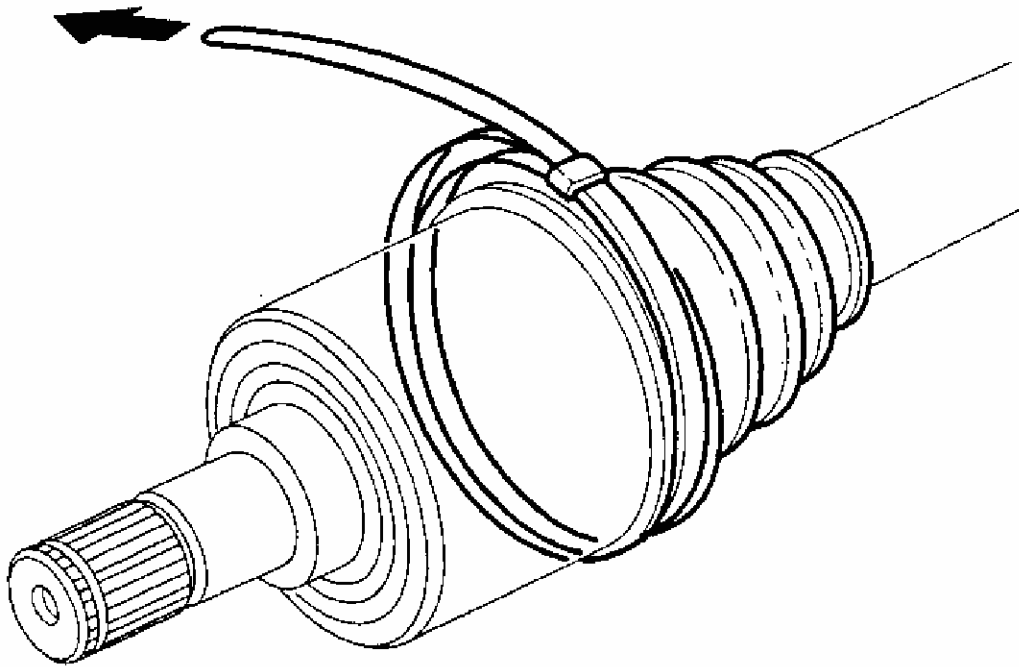
NOTE: **Make sure the band and clip do not interfere with anything, and the band does not move.**
 Remove any grease remaining on the surrounding surfaces.

20. Bend the band end (A) by tapping it down with a hammer. See **Fig. 33** .
21. Install the boot band on the other end of the boot, and repeat steps 13 -19 .
22. Install the new set ring (A). See **Fig. 15** .



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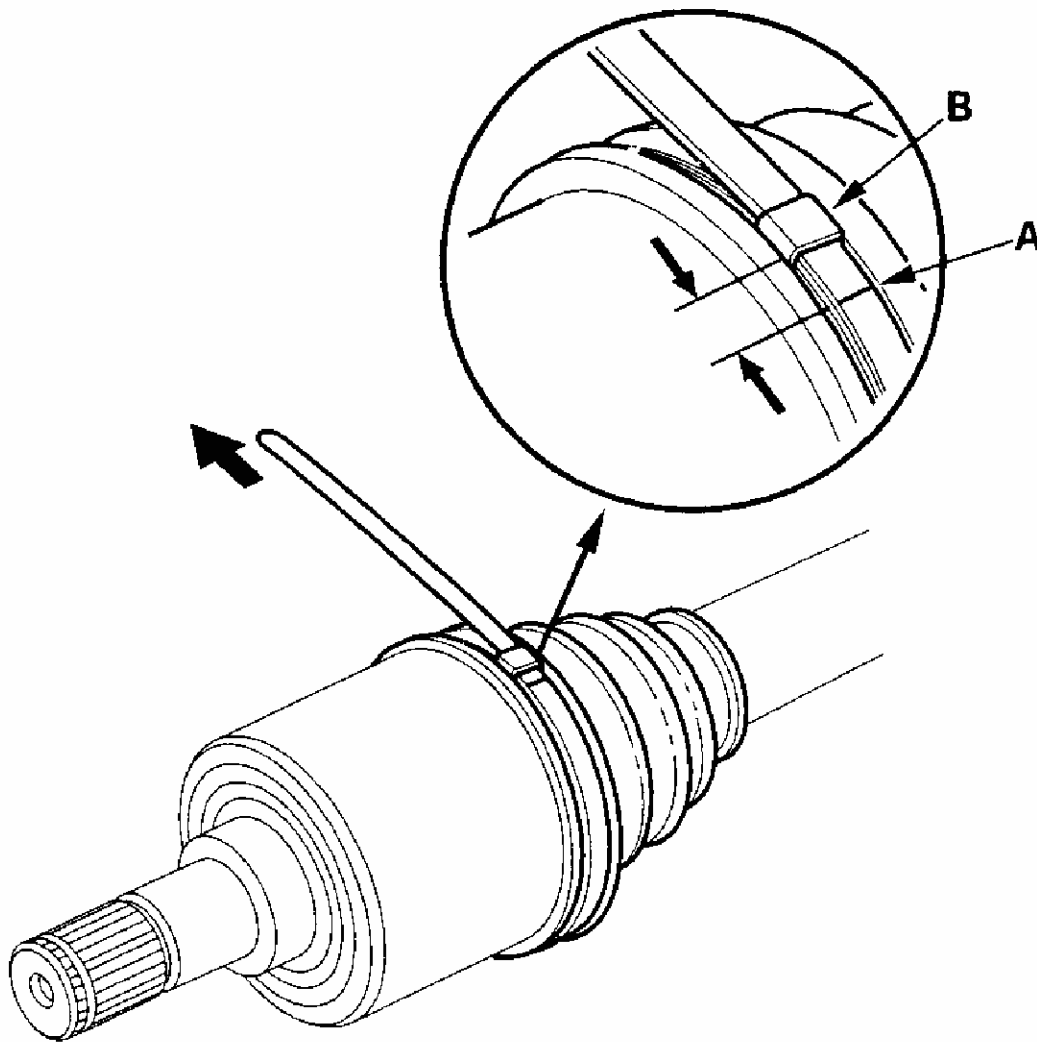
Fig. 27: Closing Hook Portion Of Band
Courtesy of AMERICAN HONDA MOTOR CO., INC.



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Fig. 28: Installing Boot Band

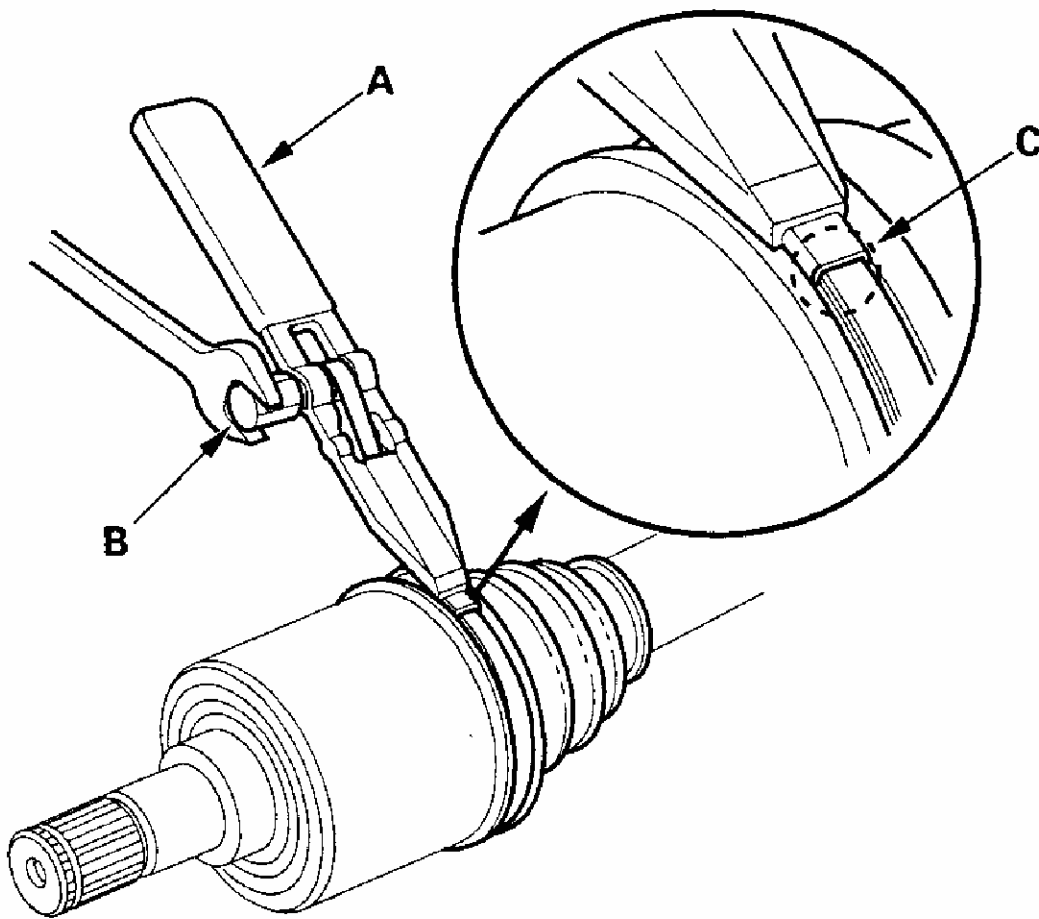
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Fig. 29: Marking Boot Band

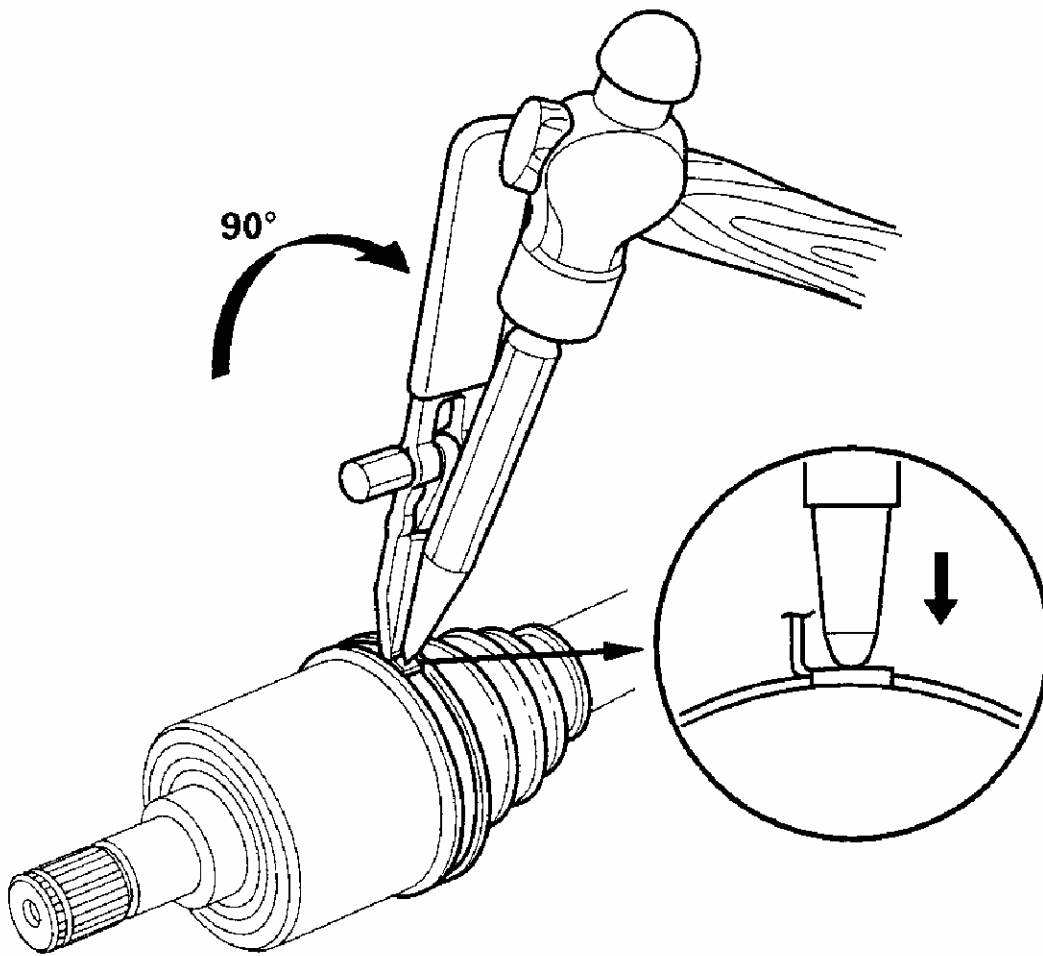
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Fig. 30: Installing Boot Band (1 of 4)

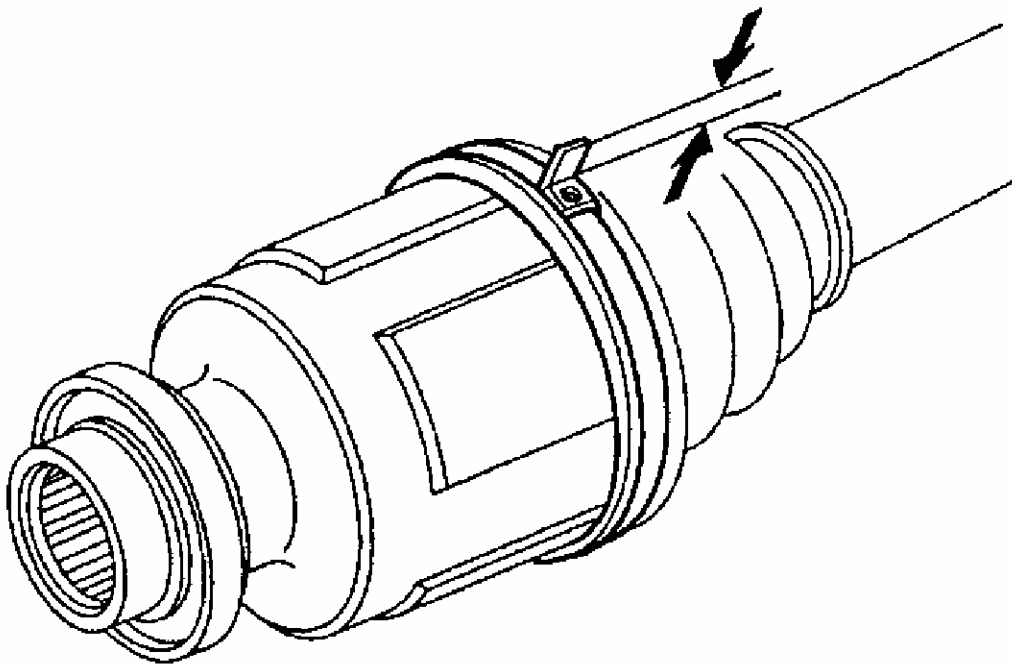
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Fig. 31: Installing Boot Band (2 of 4)

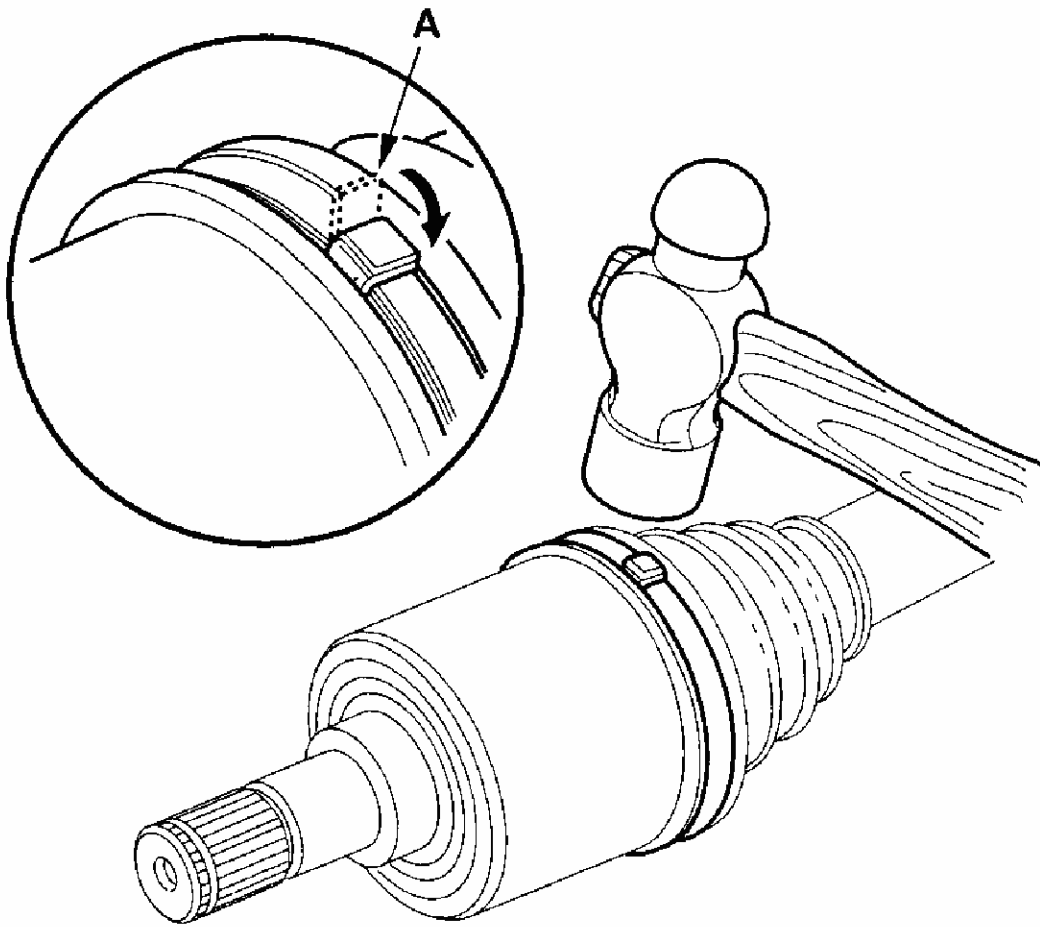
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Fig. 32: Installing Boot Band (3 of 4)

Courtesy of AMERICAN HONDA MOTOR CO., INC.



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Fig. 33: Installing Boot Band (4 of 4)

Courtesy of AMERICAN HONDA MOTOR CO., INC.

Reassembly (Outboard Joint)

NOTE: The boot bands for the outboard and inboard joints are the same. Use the same procedures.

1. Wrap the splines with vinyl tape (A) to prevent damage to the outboard boot. See **Fig. 14**.
2. Install the outboard boot onto the axle shaft, then remove the vinyl tape. Be careful not to damage the outboard boot.
3. Seat the new stop ring into the axle shaft groove. See **Fig. 19**.
4. Insert the axle shaft (A) into the outboard joint (B) until the circlip (C) is close on the joint. See **Fig. 34**.

5. To completely seat the outboard joint, pick up the axle shaft and joint, and drop them from about 4" (10 cm) onto a hard surface. DO NOT use a hammer as excessive force may damage the axle shaft. See **Fig. 35** .
6. Check the alignment of the paint mark (A) with the outboard joint end (C). See **Fig. 17** .
7. Pack the outboard joint with the joint grease 2.5-2.8 oz. (70-80 g) included in the new joint boot set. See **Fig. 36** .
8. Install a low profile type boot band on the rear axle shaft side of inboard boot.
9. Install a double loop type boot band on the rear axle shaft of inboard boot.

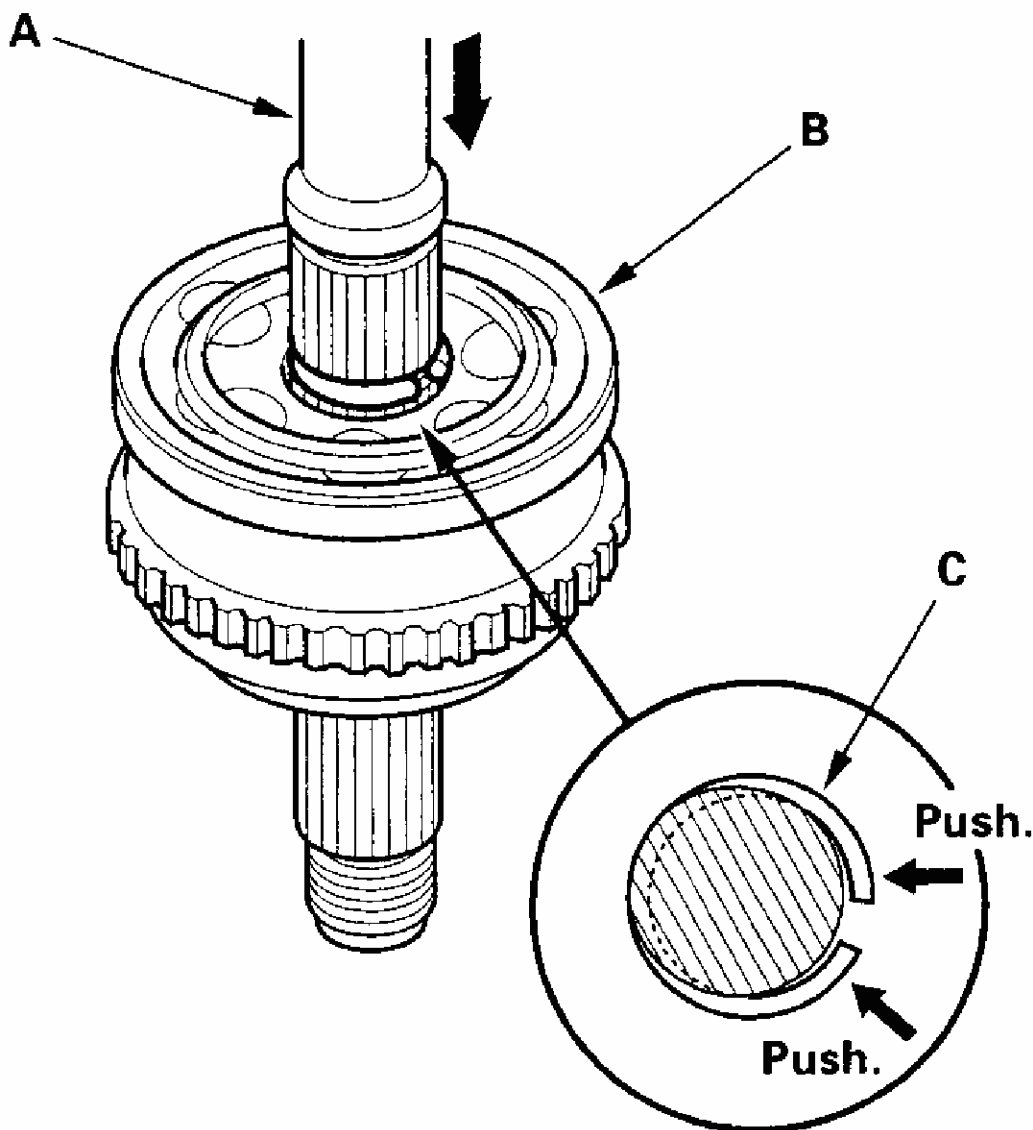
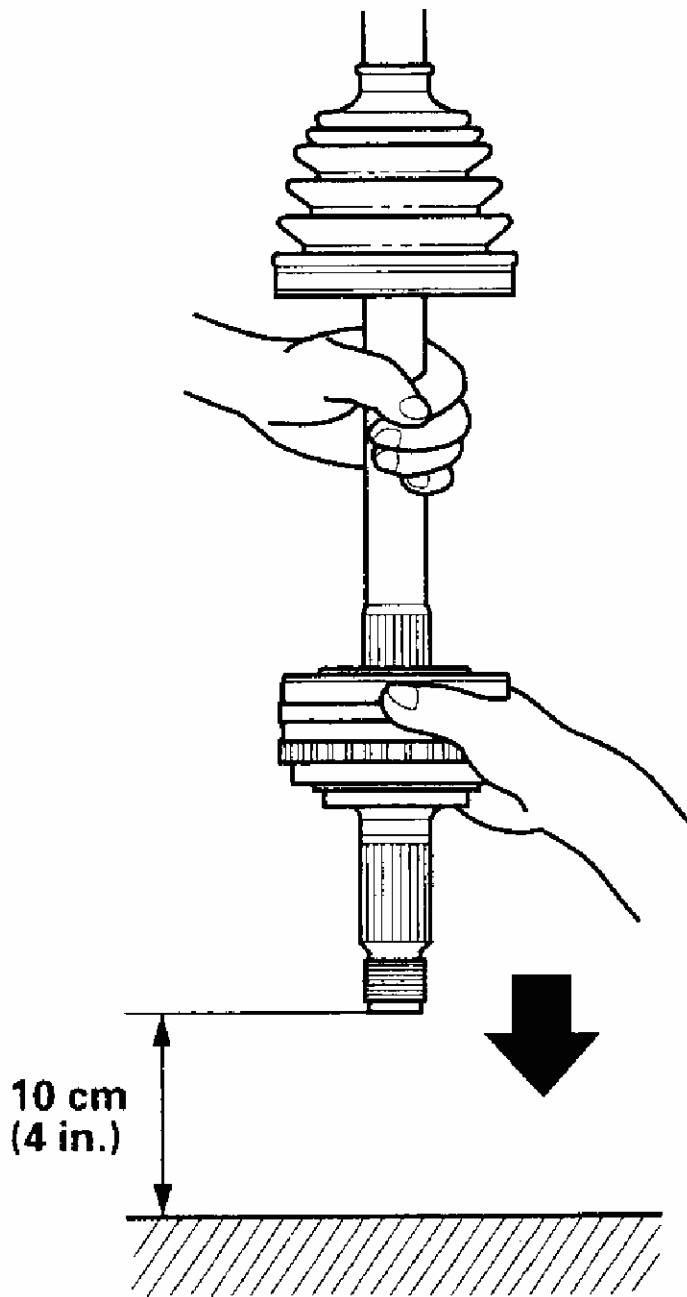
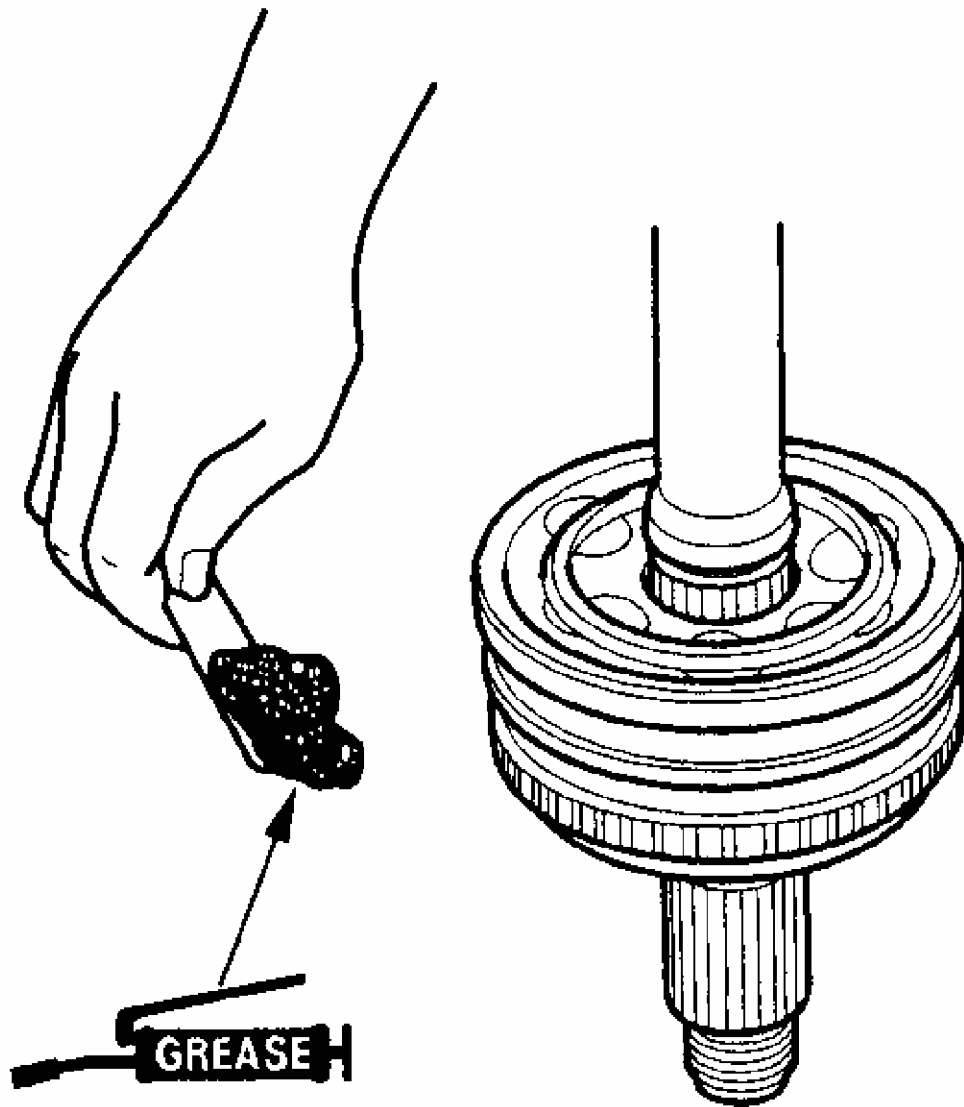


Fig. 34: Installing Circlip Onto Outboard Joint
Courtesy of AMERICAN HONDA MOTOR CO., INC.



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Fig. 35: Seating Outboard Joint
Courtesy of AMERICAN HONDA MOTOR CO., INC.



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Fig. 36: Packing Outboard Joint With Grease
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS

Application	Ft. Lbs. (N.m)

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Damper Bolt/Nut	47 (64)
Intermediate Shaft Bolt	29 (39)
Lower Arm "A" Bolt	105 (142)
Lower Arm "A" Nut	47 (64)
Lower Arm "B"-To-Knuckle Bolt	54 (74)
Spindle Nut ⁽¹⁾	181 (245)
Upper Arm Bolt	47 (64)
Upper Arm Ball Joint Castle Nut	36-43 (49-59)
Wheel Nut	80 (108)

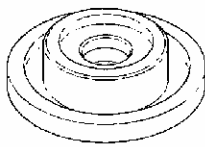
(1) Manufacturer recommends replacing spindle nut if loosened or removed.

SPECIAL TOOLS

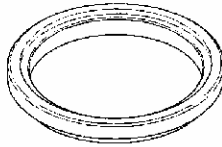
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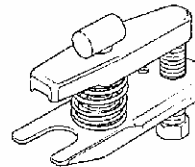
Ref.No.	Tool Number	Description	Qty
①	07JAD-PH80101	Oil Seal Driver Attachment	1
②	07LAF-SM40300	Support Base Attachment	1
③	07MAC-SL00100	Ball Joint Remover, 32 mm	1
④	07XAC-001020A	Threaded Adapter, 24 x 1.5 mm	1
⑤	07746-0010300	Attachment, 42 x 47 mm	1
⑥	07749-0010000	Driver	1
⑦	07947-4630100	Fork Seal Driver, 39.2 x 49.5 x 15 mm	1
⑧	07965-SD90100	Support Base	1
⑨	07AAD-S9VA000	Driveshaft Remover	1



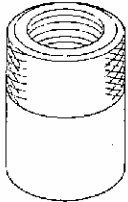
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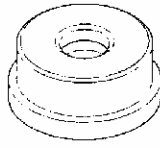
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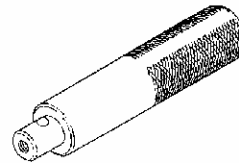
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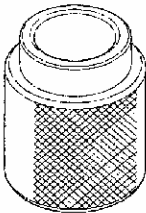
④



⑤



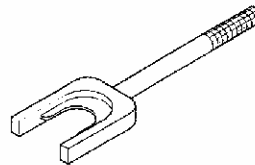
⑥



⑦



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⑨

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Fig. 37: Identifying Special Tools

Courtesy of AMERICAN HONDA MOTOR CO., INC.

2003 Honda Pilot LX
2003-04 DRIVE AXLES Axle Shafts - Rear - Pilot

2003 Honda Pilot LX
2003-04 DRIVE AXLES Axle Shafts - Rear - Pilot